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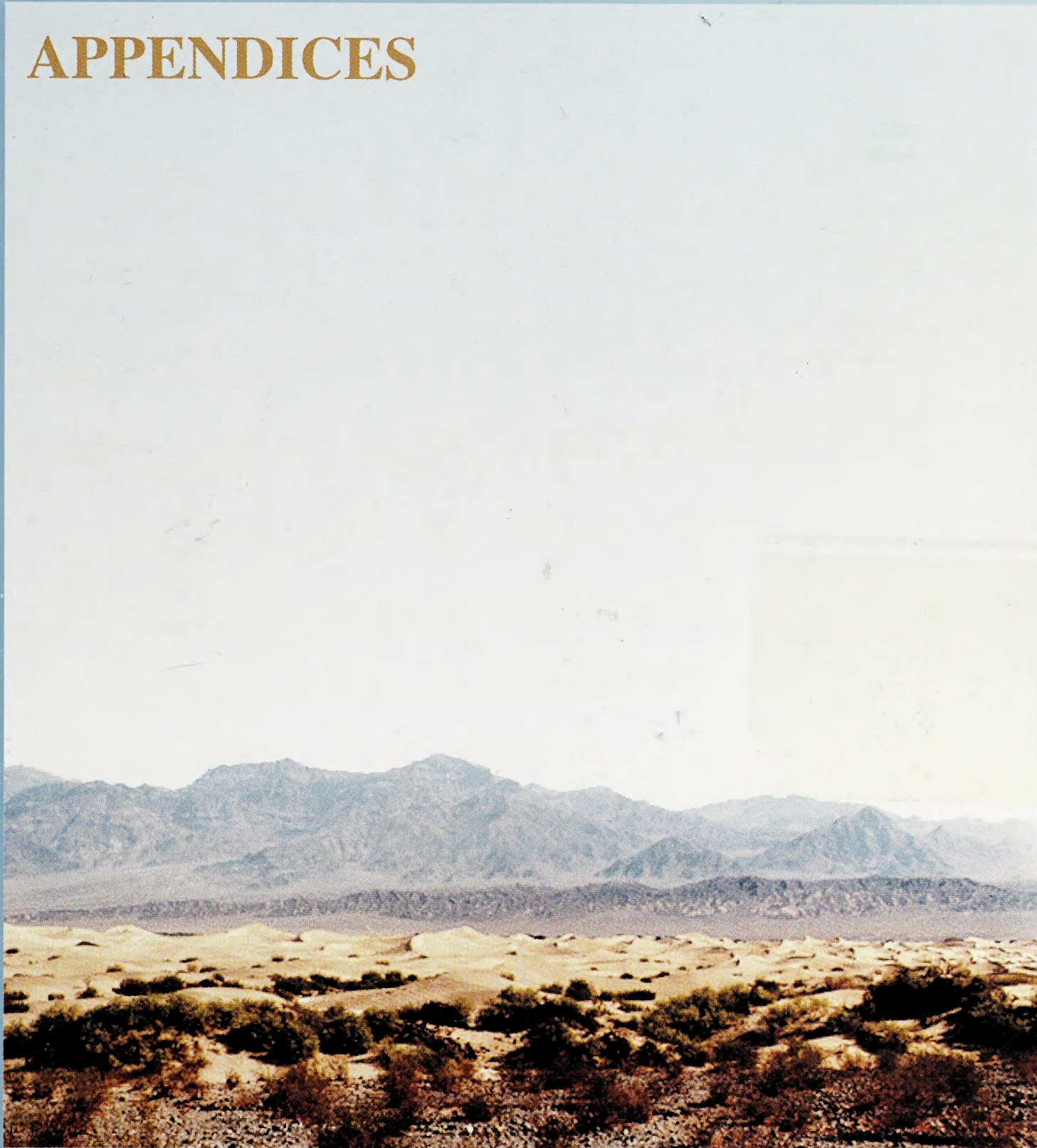
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United States Department of the Interior  
Timbisha Shoshone Tribe

# Final Legislative Environmental Impact Statement Timbisha Shoshone Homeland

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## APPENDICES



Lead Agency



Cooperating Agencies

November 2000



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**UNITED STATES DEPARTMENT OF THE INTERIOR  
TIMBISHA SHOSHONE TRIBE**

**Final Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland**

**VOLUME III OF III:  
APPENDICES**

**NOVEMBER 2000**

Prepared for:

Lead Agency

National Park Service  
United States Department of the Interior

Cooperating Agencies

Bureau of Land Management  
United States Department of the Interior

United States Fish and Wildlife Service  
United States Department of the Interior

Bureau of Reclamation  
United States Department of the Interior

Bureau of Indian Affairs  
United States Department of the Interior

Nye County, Nevada







**TIMBISHA SHOSHONE HOMELAND FINAL LEIS  
LEGISLATIVE ENVIRONMENTAL IMPACT STATEMENT  
VOLUME III**

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## **APPENDIX A**

### **CALIFORNIA DESERT PROTECTION ACT (PUBLIC LAW 103-433) SECTIONS RELEVANT TO DEATH VALLEY NATIONAL PARK**







**Appendix A**  
**California Desert Protection Act (Public Law 103-433)**  
**Sections Relevant to Death Valley National Park**

One Hundred Third Congress

of the

United States of America

AT THE SECOND SESSION

Begun and held at the City of Washington on Tuesday,  
the twenty-fifth day of January, one thousand nine hundred and ninety-four

An Act

To designate certain lands in the California Desert as wilderness, to establish the Death Valley and Joshua Tree National Parks, to establish the Mojave National Preserve, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

**SECTION 1. SHORT TITLE.**

Sections 1 and 2, and titles I through IX of this Act may be cited as the "California Desert Protection Act of 1994".

**SEC. 2. FINDINGS AND POLICY.**

(a) The Congress finds and declares that--

- (1) the federally owned desert lands of southern California constitute a public wildland resource of extraordinary and inestimable value for this and future generations;
- (2) these desert wildlands display unique scenic, historical, archeological, environmental, ecological, wildlife, cultural, scientific, educational, and recreational values used and enjoyed by millions of Americans for hiking



and camping, scientific study and scenic appreciation;

(3) the public land resources of the California desert now face and are increasingly threatened by adverse pressures which would impair, dilute, and destroy their public and natural values;

(4) the California desert, embracing wilderness lands, units of the National Park System, other Federal lands, State parks and other State lands, and private lands, constitutes a cohesive unit posing unique and difficult resource protection and management challenges;

(5) through designation of national monuments by Presidential proclamation, through enactment of general public land statutes (including section 601 of the Federal Land Policy and Management Act of 1976, 90 Stat. 2743, 43 U.S.C. 1701 et seq.) and through interim administrative actions, the Federal Government has begun the process of appropriately providing for protection of the significant resources of the public lands in the California desert; and

(6) statutory land unit designations are needed to afford the full protection which the resources and public land values of the California desert merit.

(b) In order to secure for the American people of this and future generations an enduring heritage of wilderness, national parks, and public land values in the California desert, it is hereby declared to be the policy of the Congress that--

(1) appropriate public lands in the California desert shall be included within the National Park System and the National Wilderness Preservation System, in order to--

(A) preserve unrivaled scenic, geologic, and wildlife values associated with these unique natural landscapes;



- (B) perpetuate in their natural state significant and diverse ecosystems of the California desert;
- (C) protect and preserve historical and cultural values of the California desert associated with ancient Indian cultures, patterns of western exploration and settlement, and sites exemplifying the mining, ranching and railroading history of the Old West;
- (D) provide opportunities for compatible outdoor public recreation, protect and interpret ecological and geological features and historic, paleontological, and archeological sites, maintain wilderness resource values, and promote public understanding and appreciation of the California desert; and
- (E) retain and enhance opportunities for scientific research in undisturbed ecosystems.

### **TITLE III--DEATH VALLEY NATIONAL PARK**

#### **SEC. 301. FINDINGS.**

The Congress hereby finds that—

- (1) proclamations by Presidents Herbert Hoover in 1933 and Franklin Roosevelt in 1937 established and expanded the Death Valley National Monument for the preservation of the unusual features of scenic, scientific, and educational interest therein contained;
- (2) Death Valley National Monument is today recognized as a major unit of the National Park System, having extraordinary values enjoyed by millions of visitors;
- (3) the monument boundaries established in the 1930's exclude and thereby expose to incompatible development and inconsistent management, contiguous Federal lands of essential and superlative natural, ecological, geological, archeological, paleontological, cultural,



historical and wilderness values;

- (4) Death Valley National Monument should be substantially enlarged by the addition of all contiguous Federal lands of national park caliber and afforded full recognition and statutory protection as a National Park; and
- (5) the wilderness within Death Valley should receive maximum statutory protection by designation pursuant to the Wilderness Act.

#### SEC. 302. ESTABLISHMENT OF DEATH VALLEY NATIONAL PARK.

There is hereby established the Death Valley National Park (hereinafter in this title referred to as the "park") as generally depicted on twenty-three maps entitled "Death Valley National Park Boundary and Wilderness—Proposed", numbered in the title one through twenty-three, and dated July 1993 or prior, which shall be on file and available for public inspection in the offices of the Superintendent of the park and the Director of the National Park Service, Department of the Interior. The Death Valley National Monument is hereby abolished as such, the lands and interests therein are hereby incorporated within and made part of the new Death Valley National Park, and any funds available for purposes of the monument shall be available for purposes of the park.

#### SEC. 303. TRANSFER AND ADMINISTRATION OF LANDS.

Upon enactment of this title, the Secretary shall transfer the lands under the jurisdiction of the Bureau of Land Management depicted in the maps described in section 302 of this title, without consideration, to the administrative jurisdiction of the National Park Service for administration as part of the National Park System, and the boundary of the park shall be adjusted accordingly. The Secretary shall administer the areas added to the park by this title in accordance with the provisions of law generally applicable to units of the National Park System, including the Act entitled "An Act to establish a National Park Service, and for other purposes", approved August 25, 1916 (39 Stat. 535; 16 U.S.C. 1, 2-4).

#### SEC. 304. MAPS AND LEGAL DESCRIPTION.

Within six months after the enactment of this title, the Secretary shall file maps and a legal description of the park designated under this title with the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives. Such maps and legal description shall have the same force and effect as if included in this title, except that the Secretary may correct clerical and typographical errors in such legal description



and in the maps referred to in section 302. The maps and legal description shall be on file and available for public inspection in the offices of the Superintendent of the park and the Director of the National Park Service, Department of the Interior.

#### SEC. 305. WITHDRAWAL.

Subject to valid existing rights, all Federal lands within the park are hereby withdrawn from all forms of entry, appropriation, or disposal under the public land laws; from location, entry, and patent under the United States mining laws; and from disposition under all laws pertaining to mineral and geothermal leasing, and mineral materials, and all amendments thereto.

#### SEC. 306. GRAZING.

(a) IN GENERAL- The privilege of grazing domestic livestock on lands within the park shall continue to be exercised at no more than the current level, subject to applicable laws and National Park Service regulations.

(b) SALE OF PROPERTY- If a person holding a grazing permit referred to in subsection (a) informs the Secretary that such permittee is willing to convey to the United States any base property with respect to which such permit was issued and to which such permittee holds title, the Secretary shall make the acquisition of such base property a priority as compared with the acquisition of other lands within the park, provided agreement can be reached concerning the terms and conditions of such acquisition. Any such base property which is located outside the park and acquired as a priority pursuant to this section shall be managed by the Federal agency responsible for the majority of the adjacent lands in accordance with the laws applicable to such adjacent lands.

#### SEC. 307. DEATH VALLEY NATIONAL PARK ADVISORY COMMISSION.

(a) The Secretary shall establish an Advisory Commission of no more than fifteen members, to advise the Secretary concerning the development and implementation of a new or revised comprehensive management plan for Death Valley National Park.

(b)(1) The advisory commission shall include an elected official for each County within which any part of the park is located, a representative of the owners of private properties located within or immediately adjacent to the park, and other members representing persons actively engaged in grazing and range management, mineral exploration and development, and persons with expertise in relevant fields, including geology, biology, ecology, law enforcement, and the protection and management of National Park resources and values.

(2) Vacancies in the advisory commission shall be filled by the Secretary so as to maintain the full diversity of views required to be represented on the advisory commission.



(c) The Federal Advisory Committee Act shall apply to the procedures and activities of the advisory commission.

(d) The advisory commission shall cease to exist ten years after the date of its establishment.

#### SEC. 308. BOUNDARY ADJUSTMENT.

In preparing the maps and legal descriptions required by sections 304 and 602 of this Act, the Secretary shall adjust the boundaries of the Death Valley National Park and Death Valley National Park Wilderness so as to exclude from such National Park and Wilderness the lands generally depicted on the map entitled "Porter Mine (Panamint Range) Exclusion Area" dated June 1994.

### TITLE V—MOJAVE NATIONAL PRESERVE

*(\*The following section included under Title V is applicable to all wilderness areas and park units designated or enlarged by the CDPA.)*

SEC. 519. NO ADVERSE AFFECT ON LAND UNTIL ACQUIRED. Unless and until acquired by the United States, no lands within the boundaries of wilderness areas or National Park System units designated or enlarged by this Act that are owned by any person or entity other than the United States shall be subject to any of the rules or regulations applicable solely to the Federal lands within such boundaries and may be used to the extent allowed by applicable law. Neither the location of such lands within such boundaries nor the possible acquisition of such lands by the United States shall constitute a bar to the otherwise lawful issuance of any Federal license or permit other than a license or permit related to activities governed by 16 U.S.C. 4601-22(c). Nothing in this section shall be construed as affecting the applicability of any provision of the Mining in the Parks Act (16 U.S.C. 1901 et seq.), the Clean Air Act (42 U.S.C. 7401 et seq.), or regulations applicable to oil and gas development as set forth in 36 CFR 9B.

### TITLE VI--NATIONAL PARK SYSTEM WILDERNESS

#### SEC. 601. DESIGNATION OF WILDERNESS.

(a) In furtherance of the purposes of the Wilderness Act (78 Stat. 890; 16 U.S.C. 1311 et seq.), the following lands within the units of the National Park System designated by this Act are hereby designated as wilderness, and therefore, as components of the National Wilderness Preservation System:

(1) Death Valley National Park Wilderness, comprising approximately three million one hundred fifty-eight thousand thirty-eight acres, as generally depicted on twenty-three maps entitled "Death Valley National Park Boundary and Wilderness", numbered in the title one through twenty-three, and dated October 1993 or prior, and three maps entitled "Death Valley National Park Wilderness", numbered in the title one through three, and dated July 1993 or prior, and which shall be known as the Death Valley Wilderness.

(2) Joshua Tree National Park Wilderness Additions, comprising approximately one hundred thirty-one thousand seven hundred and eighty acres, as generally depicted on four maps entitled "Joshua Tree National Park Boundary and Wilderness—Proposed", numbered in the title one through four, and dated October 1991 or prior, and which are hereby incorporated in, and which shall be deemed to be a part of the Joshua Tree Wilderness as designated by Public Law 94-567.

(3) Mojave National Preserve Wilderness, comprising approximately six hundred ninety-five thousand two hundred acres, as generally depicted on ten maps entitled "Mojave National Park Boundary and Wilderness—Proposed", and numbered in the title one through ten, and dated March 1994 or prior, and seven maps entitled "Mojave National Park Wilderness—Proposed", numbered in the title one through seven, and dated March 1994 or prior, and which shall be known as the Mojave Wilderness.

(b) POTENTIAL WILDERNESS- Upon cessation of all uses prohibited by the Wilderness Act and publication by the Secretary in the Federal Register of notice of such cessation, potential wilderness, comprising approximately six thousand eight hundred and forty acres, as described in "1988 Death Valley



National Monument Draft General Management Plan Draft Environmental Impact Statement" (hereafter in this title referred to as "Draft Plan") and as generally depicted on map in the Draft Plan entitled "Wilderness Plan Death Valley National Monument", dated January 1988, and which shall be deemed to be a part of the Death Valley Wilderness as designated in paragraph (a)(1). Lands identified in the Draft Plan as potential wilderness shall be managed by the Secretary insofar as practicable as wilderness until such time as said lands are designated as wilderness.

**SEC. 602. FILING OF MAPS AND DESCRIPTIONS.**

Maps and a legal description of the boundaries of the areas designated in section 601 of this title shall be on file and available for public inspection in the appropriate offices of the National Park Service, Department of the Interior. As soon as practicable after the date of enactment of this title, maps and legal descriptions of the wilderness areas shall be filed with the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives, and such maps and legal descriptions shall have the same force and effect as if included in this title, except that the Secretary may correct clerical and typographical errors in such maps and legal descriptions.

**SEC. 603. ADMINISTRATION OF WILDERNESS AREAS.**

The areas designated by section 601 of this title as wilderness shall be administered by the Secretary in accordance with the applicable provisions of the Wilderness Act governing areas designated by that title as wilderness, except that any reference in such provision to the effective date of the Wilderness Act shall be deemed to be a reference to the effective date of this title, and where appropriate, and reference to the Secretary of Agriculture shall be deemed to be a reference to the Secretary of the Interior.

**TITLE VII--MISCELLANEOUS PROVISIONS**

**SEC. 702. LAND TENURE ADJUSTMENTS.**

In preparing land tenure adjustment decisions with the California Desert Conservation Area, of the Bureau of Land Management, the Secretary shall give priority to consolidating Federal ownership within the national park units and wilderness areas designated by this Act.

**SEC. 703. LAND DISPOSAL.**

Except as provided in section 406 of this Act, none of the lands within the boundaries of the wilderness or park areas designated under this Act shall be granted to or otherwise made available for use by the Metropolitan Water District or any other agencies or persons pursuant to the Boulder Canyon Project Act (43 U.S.C. 617-619b) or any similar Acts.

**SEC. 704. MANAGEMENT OF NEWLY ACQUIRED LANDS.**

Any lands within the boundaries of a wilderness area designated under this Act which are acquired by the Federal Government, shall become part of the wilderness area within which they are located and shall be managed in accordance with all the provisions of this Act and other laws applicable to such wilderness area.

**SEC. 705. NATIVE AMERICAN USES AND INTERESTS.**

(a) ACCESS- In recognition of the past use of the National Park System units and wilderness areas designed under this Act by Indian people for traditional cultural and religious purposes, the Secretary shall ensure access to such park system units and wilderness areas by Indian people for such traditional cultural and religious purposes. In implementing this section, the Secretary, upon the request of an Indian tribe or Indian religious community, shall temporarily close to the general public use of one or more specific portions of the park system unit or wilderness area in order to protect the privacy of traditional cultural and religious activities in such areas by Indian people. Any such closure shall be made to affect the smallest practicable area for the minimum period necessary for such purposes. Such access shall be consistent with the purpose and intent of Public Law 95-341 (42 U.S.C. 1996) commonly referred to as the "American Indian Religious Freedom Act", and with respect to areas designated as wilderness, the Wilderness Act (78 Stat. 890; 16 U.S.C. 1131).

(b) STUDY- (1) The Secretary, in consultation with the Timbisha Shoshone Tribe and relevant Federal agencies, shall conduct a study, subject to the availability of appropriations, to identify lands suitable for a reservation for the Timbisha Shoshone Tribe that are located within the Tribe's aboriginal homeland area within and outside the boundaries of the Death Valley National Monument and the Death Valley National Park, as described in title III of this Act.

(2) Not later than 1 year after the date of enactment of this title, the Secretary shall submit a report to the Committee on Energy and Natural Resources and the Committee on Indian Affairs of the United States



Senate, and the Committee on Natural Resources of the United States House of Representatives on the results of the study conducted under paragraph (1).

SEC. 706. FEDERAL RESERVED WATER RIGHTS.

(a) Except as otherwise provided in section 204 of this Act, with respect to each wilderness area designated by this Act, Congress hereby reserves a quantity of water sufficient to fulfill the purposes of this Act. The priority date of such reserved water rights shall be the date of enactment of this Act.

(b) The Secretary and all other officers of the United States shall take all steps necessary to protect the rights reserved by this section, including the filing by the Secretary of a claim for the quantification of such rights in any present or future appropriate stream adjudication in the courts of the State of California in which the United States is or may be joined in accordance with section 208 of the Act of July 10, 1952 (66 Stat. 560, 43 U.S.C. 666), commonly referred to as the McCarran Amendment.

(c) Nothing in this Act shall be construed as a relinquishment or reduction of any water rights reserved or appropriated by the United States in the State of California on or before the date of enactment of this Act.

(d) The Federal water rights reserved by this Act are specific to the wilderness area located in the State of California designated under this Act. Nothing in this Act related to the reserved Federal water rights shall be construed as establishing a precedent with regard to any future designations, nor shall it constitute an interpretation of any other Act or any designation made thereto.

SEC. 707. CALIFORNIA STATE SCHOOL LANDS.

(a) NEGOTIATIONS TO EXCHANGE- Upon request of the California State Lands Commission (hereinafter in this section referred to as the "Commission"), the Secretary shall enter into negotiations for an agreement to exchange Federal lands or interests therein on the list referred to in subsection (b)(2) for California State School lands or interests therein which are located within the boundaries of one or more of the wilderness areas or park system units designated by this Act (hereinafter in this section referred to as "State School lands."). The Secretary shall negotiate in good faith to reach a land exchange agreement consistent with the requirements of section 206 of the Federal Land Policy and Management Act of 1976.

(b) PREPARATION OF LIST- Within six months after the date of enactment of this Act, the Secretary shall send to the Commission and to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives a list of the following:

(1) State School lands or interests therein (including mineral interests) which are located within the boundaries of the wilderness areas or park system units designated by this Act.

(2) Lands within the State of California under the jurisdiction of the Secretary that the Secretary determines to be suitable for disposal for exchange, identified in the following priority--

(A) lands with mineral interests, including geothermal, which have the potential for commercial development but which are not currently under mineral lease or producing Federal mineral revenues;

(B) Federal claims in California managed by the Bureau of Reclamation that the Secretary determines are not needed for any Bureau of Reclamation project; and

(C) any public lands in California that the Secretary, pursuant to the Federal Land Policy and Management Act of 1976, has determined to be suitable for disposal through exchange.

(3) Any other Federal land, or interest therein, within the State of California, which is or becomes surplus to the needs of the Federal Government. The Secretary may exclude, in the Secretary's discretion, lands located within, or contiguous to, the exterior boundaries of lands held in trust for a federally recognized Indian tribe located in the State of California.

(4) The Secretary shall maintain such list and shall annually transmit such list to the Committee on Energy and Natural Resources of the United States Senate and the Committee on Natural Resources of the United States House of Representatives until all of the State School lands identified in paragraph (1) have been acquired.

(c) DISPOSAL OF SURPLUS FEDERAL PROPERTY- (1) Effective upon the date of enactment of this title and until all State School lands identified in paragraph (b)(1) of this section are acquired, no Federal lands or interests therein within the State of California may be disposed of from Federal ownership unless--

(A) the Secretary is notified of the availability of such lands or interest therein;

(B) the Secretary has notified the Commission of the availability of such lands or interests therein for exchange; and

(C) the Commission has not notified the Secretary within six months that it wishes to consider entering into an exchange for such lands or interests therein.



(2) If the Commission notifies the Secretary that it wishes to consider an exchange for such lands or interests therein, the Secretary shall attempt to conclude such exchange in accordance with the provisions of this section as quickly as possible.

(3) If an agreement is reached and executed with the Commission, then upon notice to the head of the agency having administrative jurisdiction over such lands or interests therein, the Secretary shall be vested with administrative jurisdiction over such land or interests therein for the purpose of concluding such exchange.

(4) Upon the acquisition of all State School lands or upon notice by the Commission to the Secretary that it no longer has an interest in such lands or interests therein, such lands or interests shall be released to the agency that originally had jurisdiction over such lands or interests for disposal in accordance with the laws otherwise applicable to such lands or interests.

(d) NO EFFECT ON MILITARY BASE CLOSURES- The provisions of this section shall not apply to the disposal of property under title II of the Defense Authorization Amendments and Base Closure and Realignment Act (Public Law 100-526; 102 Stat. 2627; 10 U.S.C. 2687 note) or the Defense Base Closure and Realignment Act of 1990 (Public Law 101-510; 104 Stat. 1808; 10 U.S.C. 2687 note).

#### SEC. 708. ACCESS TO PRIVATE PROPERTY.

The Secretary shall provide adequate access to nonfederally owned land or interests in land within the boundaries of the conservation units and wilderness areas designated by this Act which will provide the owner of such land or interest the reasonable use and enjoyment thereof.

#### SEC. 709. FEDERAL FACILITIES FEE EQUITY.

(a) POLICY STATEMENT- It is the intent of Congress that entrance, tourism or recreational use fees for use of Federal lands and facilities not discriminate against any State or any region of the country.

(b) FEE STUDY- The Secretary, in cooperation with other affected agencies, shall prepare and submit a report by May 1, 1996 to the Committee on Energy and Natural Resources of the United States Senate, the Committee on Natural Resources of the United States House of Representatives, and any other relevant committees, which shall--

(1) identify all Federal lands and facilities that provide recreational or tourism use; and

(2) analyze by State and region any fees charged for entrance, recreational or tourism use, if any, on Federal lands or facilities in a State or region, individually and collectively.

(c) RECOMMENDATIONS- Following completion of the report in subsection (b), the Secretary, in cooperation with other affected agencies, shall prepare and submit a report by May 1, 1997 to the Committee on Energy and Natural Resources of the United States Senate, the Committee on Natural Resources of the United States House of Representatives, and any other relevant committees, which shall contain recommendations which the Secretary deems appropriate for implementing the congressional intent outlined in subsection (a).

#### SEC. 710. LAND APPRAISAL.

Lands and interests in lands acquired pursuant to this Act shall be appraised without regard to the presence of a species listed as threatened or endangered pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.).

#### SEC. 711. DEFINITION.

Any reference to the term "this Act" in titles I through IX shall be deemed to be solely a reference to sections 1 and 2, and titles I through IX.

### **TITLE VIII--MILITARY LANDS AND OVERFLIGHTS**

#### SEC. 801. SHORT TITLE AND FINDINGS.

(a) SHORT TITLE- This title may be cited as the "California Military Lands Withdrawal and Overflights Act of 1994".

(b) FINDINGS- The Congress finds that--

(1) military aircraft testing and training activities as well as demilitarization activities in California are an important part of the national defense system of the United States, and are essential in order to secure for the American people of this and future generations an enduring and viable national defense system;

(2) the National Park System units and wilderness areas designated by this Act lie within a region critical to providing training, research, and development for the Armed Forces of the United States and its allies;

(3) there is a lack of alternative sites available for these military training, testing, and research activities;

(4) continued use of the lands and airspace in the California desert region is essential for military purposes; and



(5) continuation of these military activities, under appropriate terms and conditions, is not incompatible with the protection and proper management of the natural, environmental, cultural, and other resources and values of the Federal lands in the California desert area.

**SEC. 802. MILITARY OVERFLIGHTS.**

(a) OVERFLIGHTS- Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard within such units.

(b) SPECIAL AIRSPACE- Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude the designation of new units of special airspace or the use or establishment of military flight training routes over such new park system or wilderness units.

(c) NO EFFECT ON OTHER LAWS- Nothing in this section shall be construed to modify, expand, or diminish any authority under other Federal law.

**TITLE IX--AUTHORIZATION OF APPROPRIATIONS**

**SEC. 901. AUTHORIZATION OF APPROPRIATIONS.**

There is authorized to be appropriated to the National Park Service and to the Bureau of Land Management to carry out this Act an amount not to exceed \$36,000,000 over and above that provided in fiscal year 1994 for additional administrative and construction costs over the fiscal year 1995-1999 period, and \$300,000,000 for all land acquisition costs. No funds in excess of these amounts may be used for construction, administration, or land acquisition authorized under this Act without a specific authorization in an Act of Congress enacted after the date of enactment of this Act.

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## **APPENDIX B**

### **LAND PROTECTION PLAN FOR DEATH VALLEY NATIONAL PARK**







## **Appendix B**

### **Land Protection Plan for Death Valley National Park**

#### **I. INTRODUCTION**

##### **A. Departmental and NPS Policies on Land Protection**

The use of the Federal portion of the Land and Water Conservation Fund (LWCF) is governed by a policy statement issued in May 1982 by the Department of the Interior (47FR19784). The policy requires that each agency using the fund will:

1. Identify the lands or interests in lands that need to be in Federal ownership to achieve management unit purposes consistent with published objectives of the unit.
2. Use, to the maximum extent practical, cost-effective alternatives to direct Federal purchase of private lands, and, when acquisition is necessary, acquire or retain only the minimum interests necessary to meet management objectives.
3. Cooperate with landowners, other Federal agencies, State and local governments and the private sector to manage lands for public use or protect it for resource conservation.
4. Formulate, or revise as necessary, plans for land acquisition and resource use to assure that the socio-cultural impacts are considered and that the most outstanding areas are adequately managed.

In response to this policy, the National Park Service published a final interpretive rule on May 11, 1983 (48FR21121). That rule requires that the National Park Service develop a land protection plan for each unit of the National Park system that contain nonfederal lands within the area's authorized boundary.

The purpose of the Plan is to identify methods of assuring the protection of the natural, historic, scenic, cultural, recreation or other significant resources and to provide for adequate visitor use. The Plan will be prepared in compliance with relevant legislation, other Congressional guidelines, Executive Orders, and Departmental and National Park Service policies. The Plan will be clear and concise, prepared with public participation and include full consideration of the alternatives available for land protection. Plans will be updated as necessary to reflect changing conditions.

The major issues to be addressed by the Plan are the uses that would be compatible on the remaining nonfederal tracts, the protection methods most usefully employed to avoid incompatible uses and protect park resources, and the relative urgency of protection action on the various tracts.

Land protection plans are intended to provide general guidance for long-range planning and budgeting, subject to the availability of funds and other constraints. They are not intended in any way to diminish the rights of nonfederal landowners, nor do they constitute an offer to purchase lands or interests in lands.

##### **B. Need for the Plan and Major Issues**

Death Valley National Park contains nonfederal lands within the boundaries authorized by Congress. On October 31, 1994, Congress redesignated Death Valley National Monument as a National Park and added approximately 1.3 million acres to the unit, creating a park of 3.3 million acres total. Most of the new park lands were already public lands, previously administered by the Bureau of Land Management, and jurisdiction over which was transferred to the National Park Service.



The major issues that the land protection plan for each unit addresses are:

1. The extent to which existing and potential uses of private lands and access for such use through and across federal park lands, may adversely affect the natural appearance of the unit, the protection and restoration of natural systems, wilderness integrity and values and cultural sites, objects, and structures.
2. The extent to which existing and potential uses of private lands area may preclude or limit visitor enjoyment of park resources or may conflict with the aesthetic and ecologic conditions.
3. The extent to which mining activity may affect park values and resources.
4. The extent to which existing or potential uses of private lands, and access for such uses through and across Federal lands may affect species listed as threatened or endangered by the U.S. Fish and Wildlife Service and habitat listed as critical to the survival of the species.
5. The anticipated effectiveness of federal, state, and local regulations in achieving park objectives on nonfederal lands within the units.
6. The anticipated effectiveness of agreements in achieving park objectives on nonfederal lands within the units.
7. The anticipated effectiveness of less-than-fee acquisition in achieving protection of park resources on nonfederal lands within the units.
8. The potential for reservation of use and occupancies when acquiring lands from current owners.
9. The relative urgency of protection among the several areas in the units with nonfederal lands.

## **II. PURPOSE OF THE PARK AND RESOURCES TO BE PROTECTED**

### **A. Purpose of the Park**

The Act of August 25, 1916, the Organic Act of the National Park Service (16 U.S.C. 1), prescribed that the "fundamental purpose of...parks...is to conserve the scenery and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." In the Act of August 18, 1970, Congress declared that the Organic Act provisions, including the statement of fundamental purpose, shall apply to all areas of the National Park System "to the extent that such provisions are not in conflict..." with the statute that specifically applies to that particular area. (16 U.S.C. 1c.(b))

In 1978 Congress amended the 1970 Act, cited above, to state that the "authorization of activities" in parks "shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purposes for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress."

The majority of lands within Death Valley National Park are designated by law as wilderness, by the Act of October 31, 1994. The Wilderness Act of 1964 further prescribes the purpose of the wilderness designated lands. That purpose is to preserve lands in their natural condition "for the use and enjoyment of the American people in such manner as will leave them unimpaired for future use and enjoyment as wilderness." The Wilderness Act defines wilderness as "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor who does not remain,...an area of undeveloped Federal land retaining its primeval character and influence without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions..."

In summary, the purpose of parks is to preserve the natural and cultural resources so that they can be interpreted, understood and enjoyed by present and future generations.



The development of these land protection plans is being done in conjunction with the general management plan. An initial component in the development of a general management plan is the discussion and description of the specific park purpose and significance. Elsewhere in this environmental impact statement / general management plan are complete descriptions of the purpose and significance. Please refer to that section of the document for the specific park unit purpose and significance.

## **B Resources to be Protected**

### **Natural Resources**

This section is a summary of more comprehensive information presented in the 1983 Natural and Cultural Resources Management Plan. For more detailed information please refer to that document.

Death Valley National Park is the lowest point in the Western Hemisphere and one of the hottest places in the world. It is also a vast geological museum, containing examples of most of the earth's geologic eras. Here, plant and animal species, some of which occur nowhere else in the world, have adapted to the harsh desert environment. Man has also adjusted to these severe conditions, as evidenced by extensive archeological sites, historical sites related to successive ways of prospectors, miners, and homesteaders, present-day residences of native Americans, and even the current styles of resort developments and active mines.

The size of the park and the diversity of its resources make the area difficult to characterize. The salt pans of the main valley, the surrounding canyons, the unique plants and animals, and the various historical sites all represent a portion of the national park, but no single feature typifies the whole park. The assemblage of diverse natural and cultural resources, and the legends and fantasies that have evolved about the pioneers-including Death Valley Scotty-are all part of the visitor experience.

Perhaps the park's greatest assets today are the clear air, vast open spaces that stretch toward distant horizons, and the overwhelming silence. About 1.2 million people a year (1997 numbers) come to Death Valley to experience the stark and lonely vastness of the valley; the panorama of rugged canyons and mountains; the pleasures of the dry, warm winter climate; the challenge of the hot, arid summer; the relief of the cooler mountains; and the reminders of frontier life.

Death Valley National Park includes nearly 120 miles of Death Valley, a 156-mile-long north/south-trending trough that formed between two major block-faulted mountain ranges: the Amargosa Range on the east and the Panamint Range on the west. Telescope Peak, the highest peak in the park and in the Panamint Mountains, rises 11,049 feet above sea level and lies only 15 miles from the lowest point in the United States in the Badwater Basin salt pan, 282 feet below sea level. Death Valley lies at the southern margin of the Great Basin Desert.

The Amargosa Range, which forms the eastern wall of Death Valley, includes three mountain groups from north to south: the Grapevine mountains (average elevation of the mountain crest is 7,000 feet), the Funeral Mountains (4,000 feet average crest elevation), and the Black Mountains (5,300 feet average crest elevation). The western slopes of all these mountain groups are precipitous and are cut by steep-walled canyons. Both the Funeral and the Black mountains are relatively treeless and arid.

The Panamint Range on the west side of Death Valley includes the Cottonwood Mountains to the north (average crest elevation 6,000 feet) and the Panamint Mountains to the south (average crest elevation over 8,000 feet). Long, sheer-walled canyons cut the eastern slopes of the mountains. Broad basins such as Harrisburg, Nemo and White Sage flats, Wildrose Canyon, and Butte Valley contrast sharply with the ruggedness of the surrounding terrain. The Cottonwood Mountains include smaller isolated north-south



trending mountains lying between Sand Flat, Hidden Valley and Racetrack Valley. These valleys are small basins with no drainage outlets, and each contains a small, silt-floored dry lake.

Large aprons of gravel (alluvial fans) lie against the mountains. These alluvial sediments deposited in Death Valley during the past several million years are sands and gravels removed by flash floods from the adjacent mountains. There are obvious differences in the sizes of the alluvial fans on the opposite sides of the valley; fans of the higher Panamint Mountains to the west are larger than the fans of the Black Mountains to the east.

The Death Valley hydrologic basin encompasses about 8,700 square miles in California and Nevada (Hunt and Mabey 1966). It is a closed basin and all surface drainage is internal; no streams exit the valley. Various rock types within the hydrologic basin affect regional surface and groundwater systems. Groundwater recharge on the east side of the park is from local precipitation and underflow from drainage basins far beyond the park boundary. Recharge from the west is due to local precipitation and snow retention in watersheds of the Panamint and Cottonwood mountains. Known surface water sources in the Death Valley region include potholes, seeps, wells, springs, and ponds. To date, 330 water sources of varying dependability and quality have been recorded within the park.

The diversity of Death Valley National Park's plant communities result partly from the region's location in the Mojave Desert, a zone of tension and overlap between the Great Basin Desert to the north and the Sonoran Desert to the south (Kearney and Peebles 1960). This location, combined with the great relief found within the park—from 282 feet below sea level to 11,049 feet above sea level—supports vegetation typical of four biotic life zones: the lower Sonoran, the Canadian, and even the Arctic/Alpine in portions of the Panamint Range (Jepson 1923; Storer and Usinger 1968). Based on Munz and Keck (1968) classifications, seven plant communities can be categorized within these life zones, each characterized by dominant vegetation and representative of three vegetation types: scrub, desert woodland, and coniferous forest. Microhabitats further subdivide some communities into zones, especially on the valley floor.

#### *Scrub or Desert*

Scrub is the most extensive vegetation type in Death Valley. It dominates about three-fourths of the park landscape and includes the alkali sink, creosote bush scrub, shadscale scrub, and sagebrush scrub communities. The alkali sink or salt flat community occurs in the lower elevations of the park.

#### *Desert Woodland*

Desert Woodland is an open, well-spaced community ranging from elevations of about 7,000 feet up to about 9,500 feet. Much of the soil within this community is bare and surfaced with a hard, wind scoured layer similar to desert pavement. The community is dominated by single-leaf pinyon pine (*Pinus monophylla*) and scattered individuals of juniper (*Juniperus osteosperma*).

#### *Coniferous Forest*

Coniferous Forest in Death Valley National Park includes subalpine forest and some bristlecone pine forests. Both communities occur in narrow belts at upper elevations. Dominants of subalpine forest including limber pine (*Pinus flexilis*), occur in mosaic concentrations rather than uniformly throughout the area. The bristlecone pine forest community occurs chiefly above 10,000 feet in the Panamint Range, where spacing of individual bristlecones (*Pinus aristata*) and limber pine (*Pinus flexilis*) appear more as an open woodland rather than a forest.

#### *Wildlife*

Death Valley National Park and the adjacent desert support a variety of wildlife species. Within Death Valley and the surrounding desert there are 51 species of native mammals, two species of exotic mammals, 307 species of birds, 36 species of reptiles, three species of amphibians, and six species of



fishes (Hansen 1972 and 1973; Landye 1973). Small mammals are more numerous than large mammals, such as desert bighorn, bobcat, mountain lion and mule deer. An estimated 200 to 250 mule deer are present in the pinyon/juniper associations of the Grapevine, Cottonwood, and Panamint mountains. The Nelson bighorn (*Ovis canadensis nelsoni*) is the subspecies native to Death Valley. Bighorn occur in desert mountain ranges where the terrain includes rolling hills for feeding areas and nearby cliffs within steep canyons that can be used for escape. Their range does not correlate with any specific vegetative type. The present population is estimated at 520 and appears to be declining. The cause of the decline has not been determined; however, several factors may be involved, including the introduction of diseases from livestock, poor range conditions, rapid increase in human activities (such as mining, road building, urbanization, and increased recreation), illegal hunting, and appropriation of water (Seymour 1972). Competition with other animals and drying of springs are additional factors resulting in loss of habitat. To reduce visitor impacts and prevent undue disturbance of wildlife, backcountry camping is not permitted within .25 mile of springs.

#### *Endangered, Threatened, Endemic, or Rare Plants and Animals*

Four plants found in the Eureka Dunes area of Death Valley National Park have been officially listed as endangered or threatened by the U.S. Fish and Wildlife Service. In addition, the spring-loving centaury, a threatened plant species, is found at Travertine Spring. Numerous other species are considered "sensitive" due to their limited distribution, endemism to Death Valley, or other factors.

The California Native Plant Society has compiled locality information for many of these species (see 1983 Natural and Cultural Resources Management Plan, California Native Plant Society 1976, 1978). A preliminary report from the late 1970s entitled, "Rare Plant Studies: An Inventory of the Endemic, Threatened and Endangered Plants of Death Valley National Park," is available to the staff for management purposes. NPS Management Policies provide special consideration for unique (endemic) or rare species.

The peregrine falcon and Devils Hole pupfish are listed by the U.S. Fish and Wildlife Service as endangered species. California and Nevada have listed additional species as rare or fully protected under state program, based on degrees of endangerment to populations and their habitat. The 1982 plan lists animals with special federal or state classification and whether they are endemic to Death Valley.

Numerous species of aquatic mollusks (snails) are known to be endemic to park waters (see Appendix C: Species of Special Consideration). Endemic insects occur at Saratoga Springs and Devils Hole. Systematic inventories of the park have not been made for additional endemic species.

#### *Air Quality*

Death Valley National Park is classified as a Class II clean air area (42 USC 7401 et seq.). Under this classification, a moderate amount of industrial activity may be permitted by the state in the vicinity of the park as long as the maximum allowable increases over baseline concentrations established for sulfur dioxide and particulate matter are not exceeded. In 1980 it was determined that Death Valley possesses important air quality attributes, and the park was listed for possible redesignation as a class I area, pursuant to section 164(d) of the Clean Air Act. The important attributes include visibility (vistas of salt flats, sand dunes, and distant mountain ranges are integral to the visitor experience) and plants (some species, such as desert holly, are sensitive to ozone and other pollutants). Redesignation to class I would mean more stringent standards for sulfur dioxide and particulate matter, and resource protection requirements would be specified.

Major nearby sources of pollution are the Searles Valley (Trona) complex, which is 20 miles to the southwest, and the Clay Camp colemanite processing facility, which is 10 miles to the east. The Searles Valley complex produces soda ash, borax, potash, and other chemicals. Cyclones and electrostatic



precipitators are used at Trona to control particulate emissions, and scrubbers are used to remove sulfur dioxide. The long-range transport of air pollutants, particularly ozone, is also a problem. Ozone originates from precursors, such as volatile organic compounds and nitrogen oxides, from as far away as the San Joaquin Valley and perhaps the Los Angeles basin.

#### *Mineral Resources*

Mineral deposits of known economic value are limited to talc and borates. Most of the talc production comes from a talc-bearing belt from the Warm Spring and Galena canyons in the southern portion of the Panamint Range. Borate deposits occur in the Furnace Creek Wash area. The few metal deposits that proved profitable are exhausted. At this time no metal mines are in production.

Early mining activity (1870 to 1940s) included a few town sites and mills as well as mine shafts and dumps. While surface disturbances were usually small and confined to a few acres because most mines were underground, numerous small exploration pits and adits were widely scattered over the area. With the advent of machinery capable of moving large volumes of material in a short time, the character of mining in Death Valley changed, and surface mines became predominant in the early 1970s. The largest open-pit mine within the park is American Borate Company's Boraxo Mine, a borate operation which has been mined out. This mine covers approximately 250 acres and the deposit was mined to a depth of about 400 feet. Other active open-pit mines in the monument include another borate mine in Furnace Creek Wash, five talc mines in the area of Warm Springs and Galena canyons, and one talc mine in the Ibex Hills.

#### **Cultural Resources**

##### *Archeology*

Although it is estimated that only about 6 percent of the lands within the boundaries of pre-1994 Death Valley National Monument (and an even smaller proportion of the lands added to the monument in 1994) have been surveyed for archeological resources, the overall cultural sequence is well documented. In particular, the archeological research and survey efforts of Hunt and Wallace, conducted primarily during the 1950s and 1960s, have formed the bulk of extant data about prehistoric native cultures. Nearly 2,000 archeological sites, covering some 10,000 years of human activity (Pleistocene Era; Lake Mojave Period, 10,000-5000 B.C.; Pinto Period, 5000-2000 B.C.; Gypsum Period, 2000 B.C.- 500 A.D.; Saratoga Springs Period, 500-1200 A.D.; Shoshonean Period, 1200 A.D.-Euro-American Contact) have been identified. Site types include: house circles; habitation areas, complex sites; rockshelters; campsites; workshops; quarries and lithic scatters; hunting blinds; plant food processing stations; storage pits; cemetery and burial areas; rock art (petroglyphs/pictographs); rock alignments; and rock traps or caches. Areas of particular archeological significance within the park boundaries include Butte Valley, Mesquite Flat, the floor of Death Valley, Grapevine Canyon, high elevation localities in the Panamint Mountains, alluvial fans on the west side of Death Valley, and springs.

Euro-American historic archeological sites are generally associated with transportation networks and resource procurement/exploitation features. In the park, transportation routes, water sources, and mining operations are prime locations where such archeological sites may be found.

No prehistoric archeological sites or districts within the park boundaries are listed in, or have been determined eligible for listing in, the National Register of Historic Places. Draft national register nomination forms for archeological districts in the park have been prepared for the following: Butte Valley, Mesquite Spring, Racetrack-Goldbelt, Ubehebe Crater, Upper Emigrant, Upper Panamint, Death Valley Salt Pan, Furnace Creek, Mesquite Flat, Grapevine Canyon, Ibex Spring, Keane Wonder Mine, Saratoga Springs, and Scotty's Ranch. The National Park Service is planning to prepare national register



nomination forms for the Lower Vine Ranch, Furnace Creek Wash, Saline Valley, and Eureka Valley archeological districts.

### *History*

The first Caucasians known to have entered Death Valley were adventurers seeking a shortcut to the northern California goldfields during the winter of 1849-50. The infamous name Death Valley characterizes the suffering and anxiety endured during their wanderings through the inhospitable region. With the exception of scattered railroad and General Land Office surveyors in the 1850s, the valley remained largely unvisited until rumors of its possible mineral riches spread through the West during the 1850s and 1860s. Lack of documented information on the region prompted a government-sponsored California/Nevada boundary survey in 1861 as well as military expeditions led by Cavalry Lieutenant Charles E. Bendire in 1867 and George M. Wheeler in 1871 and 1875. The most productive expedition was the U.S. Department of Agriculture's Death Valley Expedition headed by C.H. Merriam in 1891.

Mining booms began at Panamint City, Darwin, Lookout, and Chloride Cliff in 1873. Both booms were short lived, but they attracted large numbers of prospectors into the Death Valley region. After 1900, more miners and prospectors seeking mineral riches spread throughout the area from Nevada mining camps. Although many camps within what is now the national park proved to be only prospects and quickly folded, two gold mines-the Skidoo and the Keane Wonder-were significant producers.

Borate minerals concentrated on the floor of Death Valley and in surrounding areas were a source of substantial mineral wealth. The first borax mine in the valley was the Eagle Borax Works that operated from 1882 to 1884, while the later Harmony Borax Works (1883-88) popularized Death Valley with the famous 165-mile 20-mule team wagon run to the railhead at Mojave. Other borax deposits were discovered in Saline Valley and at Ryan, and in 1911 the Saline Valley salt deposit was developed. During subsequent years, its salt production would be transported over the Inyos via an engineering marvel known as the salt tram.

In 1933, Death Valley National Monument was established, and the valley soon became the focus of increasing tourism and recreational development. Significant administrative and visitor use facilities were constructed by the Civilian Conservation Corps during the Depression. Scotty's Castle and the widely-reported antics of Walter Scott ("Death Valley Scotty") contributed to the growing tourist industry in the region.

Death Valley possesses significant historic sites that represent a continuum from the mining activities of the 1860s to the present-day. Six historic period properties in the park are listed in the National Register of Historic Places:

- Skidoo
- Harmony Borax Works
- Eagle Borax Works
- Saline Valley Salt Tram Historic Structure
- Leadfield
- Death Valley Scotty Historic District

Five historic properties in the park have been determined eligible for listing in the National Register of Historic Places:

- Residential, Administrative, Maintenance, and Visitor Use Facilities in Death Valley National Park Built by the Civilian Conservation Corps: Camp Wildrose Historic District, Cow Creek Historic District, Emigrant Junction Comfort Station, Park Village Comfort Station, Texas Spring Campground Comfort Stations and stone picnic tables



- Original Bullfrog-Bullfrog West Extension Mine
- Homestake-King and Gold Bar Mines and Mills
- Las Vegas and Tonopah Railroad Grade
- Lee Historic District

Seventeen draft national register nomination forms have been prepared for the following properties in the national park in connection with the aforementioned Historic Resource Study: A History of Mining. The forms have been submitted to the Pacific-Great Basin Support Office in San Francisco, but no formal determinations of eligibility have been processed for them:

- Big Talc Mine
- Garibaldi Mine
- Gold Hill Mill
- Harrisburg Historic District
- Hungry Bill's Ranch Historic District
- Journigan's Mill
- Lemoigne Mine and Cabin
- Lost Burro Mine and Mill
- Panamint Treasure Mine
- Queen of Sheba Mine
- Wildrose Canyon Charcoal Kilns
- Chloride Cliff Historic District
- Echo Canyon Historic District
- Greenwater Historic District
- Keane Wonder Historic District
- Corduroy Road
- Furnace Creek Wash Historic District

Three draft national register nomination forms have been prepared for the following historic properties in the lands that were added to the national monument in 1994:

- Barker Ranch
- Panamint City
- Gem Mine and Mill

Four draft national register nomination forms were prepared by the Timbisha Shoshone Tribe through a NPS Historic Preservation Grant:

- Mushroom Rock
- Ubehebe Crater
- Navel Spring
- "Tumpisa" District (Furnace Creek area)

Draft national register nomination forms for archeological districts in the national park that have been prepared include: Butte Valley, Mesquite Spring, Racetrack-Goldbelt, Ubehebe Crater, Upper Emigrant, Upper Panamint, Death Valley Salt Pan, Furnace Creek, Mesquite Flat, Grapevine Canyon, Ibex Spring, Keane Wonder Mine, Saratoga Springs, and Lower Vine Ranch.

The National Park Service is planning to prepare national register nomination forms for archeological districts such as Furnace Creek Wash, Saline Valley, and Eureka Valley.



## **B. PARK HISTORY AND OTHER FACTORS RELEVANT TO PROTECTION PARK**

### **RESOURCES**

Death Valley National Monument was established by presidential proclamation under the Antiquities Act of 1906, on February 11, 1933 (Proclamation No. 2028). The original Monument contained approximately 1,601,800 acres. Supplementary proclamations in March 1937 (No. 2228) and January 1952 (No. 2961) increased the Monument's acreage to 2,067,793 acres. The Monument was subsequently changed to Death Valley National Park by Congressional action on October 31, 1994, with the passage of the California Desert Protection Act (16 U.S.C. 410aaa-83). Approximately 1.3 million acres of new lands were added, bringing the total acreage of the new park to 3,396,172 acres. Nearly 95% of the park was designated as wilderness by that same act. Specific limitations and directions were provided by Congress in the CDPA relevant to land acquisitions in the Death Valley National Park. The following list summarizes to specific direction and cites the appropriate section of the act:

- Sec. 306b provides that persons holding grazing permits that are willing to convey base property to the United States be given priority over the acquisition of other lands within the park. Three provisions in the CDPA that affect land acquisition are applicable to both Death Valley and Mojave, as well as BLM wilderness areas:
- Sec. 707 directs the Secretary to enter into negotiations with the State Lands Commission to exchange Federal lands or interests for State School lands or interests that are within parks and wilderness areas.
- Sec. 710 provides that "lands or interests in lands acquired under" the California Desert Protection Act "shall be appraised without regard to the presence of a species listed as threatened or endangered pursuant to the Endangered Species Act of 1973 (16 U.S.C. 1531 et seq.)." · Sec. 901 imposes a ceiling of \$300,000,000 for all land acquisition costs associated with the three National Park Service administered areas (including Death Valley, Mojave and Joshua Tree) and the Bureau of Land Management administered wilderness areas created by the California Desert Protection Act. NPS Management Policies (1988) provide that the National Park Service will seek to eliminate valid mining claims and nonfederal mineral interests in wilderness areas through acquisition.

## **C. Management Objectives**

### **Visitor Services**

- Ensure that authorized commercial uses of Death Valley National Park are compatible with the preservation and safe enjoyment of the resources.
- Provide for overnight visitor accommodations as well as campgrounds, food service, potable water, and staff housing facilities within limits of preservation objectives and environmental, hydrological, physical, and social factors; encourage the development of overnight facilities and related services by private inholders and private enterprises outside the park.
- Provide visitors with the opportunity to discover, explore, and understand the natural and cultural resources of the park through interpretive programs, facilities, and activities that emphasize the complex and fragile desert ecosystem, the interaction between the desert resources/environment and man, and the vulnerability of the desert environment to human impact.
- Preserve, operate, and manage Scotty's Castle, its grounds, and environs to recreate the atmosphere of the period of its construction and occupation by Walter Scott and Mr. and Mrs. Albert Johnson.



### **Visitor Use**

- Encourage Visitors to explore the backcountry, to experience the wilderness of the high Panamint, Grapevine, Cottonwood, and Funeral Ranges, and to camp and sightsee in a setting of climatic relief from the valley floor.
- Provide a wilderness experience for those who desire it, in balance with the limitations of the fragile resources.

### **Safety**

- Provide for visitor and employee safety through an ongoing safety program that recognizes the hazards of heat, humidity, flash floods, and the physical hazards of mine areas.

### **Management**

- Encourage the perpetuation of Death Valley's native Indian cultural heritage and work toward adequate standards of living in the Timbisha Shoshone village. Relate interpretation and activities to the purposes of the park.
- Encourage the use of Death Valley's resources as a center of scientific research interest, consistent with the perpetuation of native natural processes.
- Cooperate, as much as possible, with other federal agencies (Bureau of Land Management, Department of Defense, etc.), state and local agencies, mining companies, and private inholders on management programs, studies, planning, and extraction of minerals as authorized and by approved methods.

### **Resource Management**

- Maintain, preserve, and perpetuate the aesthetic setting and the natural and cultural resources of Death Valley National Park.
- Restore conditions conducive to the perpetuation of the natural processes as they functioned before disruption by technological people or competition from normative plants and animals.
- Restore native plants and animals to their original range.
- Restore a natural appearance to the land surfaces disturbed by people, recognizing that significant cultural values must be preserved.
- Ensure the perpetuation of rare and endangered plants and animals and those species endemic (specific) to Death Valley National Park.
- Perpetuate the Devils Hole pupfish in the detached Devils Hole section of the park.
- Minimize the adverse effects of mining and prospecting that conflict with the preservation and public appreciation of natural and cultural values.

## **III. NONFEDERAL LAND OWNERSHIP AND USE**

### **A. Description**

There are approximately 52,000 acres of nonfederal lands within the boundaries of Death Valley National Park. Of the nonfederal land, 41,340 acres are owned by the State of California and 10,501 acres are owned by other private parties. In addition, about 444 acres of the park are encumbered by private mineral interests associated with unpatented mining claims.

Detailed tables listing tracts are found in the following tables at the end of this section:

1. Patented mining claim groups
2. Unpatented mining claims
3. Appropriated water rights

#### **1. State Lands (41,340 acres)**



The Statehood Act of 1850 granted to the-state of California all unappropriated and surveyed sections 16 and 36, including those in the area later included in the park. Most of the state land included within the old Monument boundary has been acquired by the National Park Service through exchange. However, the expansion of the park in 1994 brought several new State school sections into the park. The CDPA requires the National Park Service to give priority to exchanging these parcels out of the parks, and an active program is currently underway to achieve that objective. In 1998, 12,872 acres of State land were acquired by exchanges. Eighty-two parcels of various sizes remained as of June 1998, totalling 41,340 acres.

## 2. Private Lands (10,501 acres)

About 60% of the private lands within Death Valley are patented mining claims. There are patented mining claims totaling 6,444 acres. Other private lands exist in seven areas of the park and total 4,208 acres.

The private lands may be grouped into twelve areas as summarized below.

	<u>Tracts</u>	<u>Acres</u>
1. Lower Furnace Creek	13	2,935
2. Upper Furnace Creek	24	1,067
3. Galena Canyon, Bullfrog Hills, Big Bell, Inyo Gold	9	575
4. Warm Spring Canyon, Skidoo	7	270
5. Amfac Properties (Furnace Creek)	2	342
6. Amargosa Valley	2	1,920
7. Saline Valley	3	1,263
8. Panamint Springs	2	260
9. Jackass Flat (Saline Range)	1	155
10. SW Funeral Mountains	1	228
11. Goler Canyon	1	40
12. Other mining claim groups	unknown	1700
<b>TOTAL</b>	<b>65</b>	<b>10,755</b>

The priority areas are discussed in detail below.

1. Lower Furnace Creek Furnace Creek Wash is a relatively flat, gently sloping drainage containing an ephemeral braided stream channel, with elevations ranging from 2,800 feet at its head to near sea level at the mouth at the head of the alluvial fan.

The entire Furnace Creek Wash area is fully visible to visitors entering Death Valley from the east on Highway 190. This is the most heavily used access into the park. Except for partially reclaimed dumps of the Boraxo Mine (open pit) and the headframe area of the Billie underground mine (just



outside park boundaries) the view of the Furnace Creek area from Highway 190 is relatively free from disturbance by people's activities. Undisturbed vistas of the broad wash and colorful surrounding mountains offer visitors an imposing visual introduction to Death Valley. The eroded badlands, adjacent to Highway 190, present a colorful and bizarre vista for visitors entering the park along this corridor. Zabriskie Point, bordered on the south, north and west by patented U.S. Borax claims is one of the most visited and scenic points in the park.

The Twenty Mule Team road through the badlands is the major visitor interest point in the lower Furnace Creek area aside from Zabriskie Point. The road, for the most part, is located on patented claims owned by U.S. Borax. Visitors traveling this three-mile road are afforded an intimate glimpse of the badlands, essentially undisturbed except for the small early mine development.

The Monte Blanco borate mine, which appears to have experienced some late development in the early 1950's, and the assay office site in Twenty Mule Team Canyon have been determined to be eligible for inclusion on the National Register of Historic Places. The area contains the original colemanite discovery in Death Valley as well as the site of Death Valley's oldest existing building and several unique dugout, mound and stone platform variations.

Highway 190 has significance in Furnace Creek Wash as the route followed into Death Valley by early gold seekers searching for a short cut to California gold fields.

2. Upper Furnace Creek Wash. Upper Furnace Creek Wash contains much of the United States known colemanite resources. The Boraxo was the first open pit mine of any significance in the park. The Boraxo pit and dumps cover nearly 260 acres. The pit is not visible from normal visitor travel routes and recontouring of the waste rock dumps serves to mitigate most of the adverse impact on the visibility.

The Dantes View road, through the upper Furnace Creek area, provides access to major scenic and visitor interest points in the Black Mountains. The overlook at Dantes View provides more than 90,000 visitors annually with an easily accessible panorama of Death Valley, unexcelled elsewhere in the monument. This section of the Dantes View road is similar and in some places identical to that part of the route from the upper Furnace Creek area to Greenwater and Shoshone, California, shown on an early edition of the Furnace Creek Quadrangle, surveyed 1905 to 1906. The public road route probably predates any of the mining claims currently incorporating any portion of the Dantes View road. Other than the Billie underground mine surface plant and development waste dump and the surface development at the historic Ryan mines, which are outside the park, the most visible evidence of mining along the Dantes View road is the existing Sigma Mine waste dump and stockpile one-half mile from Dantes View road.

Desert bighorn sheep inhabit range to the southwest, west and northeast. The upper Furnace Creek area is known to be a route of travel between range and water sources. Bighorn sheep have been observed in the Furnace Creek area moving northeast to southwest and southwest to northeast.

Features of historical significance in the upper Furnace Creek area are limited to the Ryan Mines and railroad grade (outside the park) which served the mines until the 1920's, and a few trash heaps and a gypsum wall of unknown origin adjacent to a gypsum outcrop on the park's east boundary, 2.5 miles south of Highway 190.

3. Galena Canyon, Bullfrog Hills, Big Bell, Inyo Gold. The Galena Canyon has been subjected to considerable mining and mineral activity over a period of 45 years. Except for the Mammoth Mine, which is an underground operation, all of the canyon's mines were open pit or surface operations.



The location and proximity of the Galena Canyon mines expose them to a large percentage of Death Valley's visitors. Until mid-1977, the stark white talc waste dumps of the Bonny, Mammoth and Mongolian Mines were conspicuous against dark diabase and limestone slopes. The mines were a major visual characteristic from several popular visitor interest points including Dantes View (19 miles east), the Badwater Road and the West Side Road.

The Big Bell Mine was discovered in 1904 and worked mostly in the 1930s. The property contains an extensive assortment of mining equipment as well as standing structures that have known great potential significance in illuminating the operation of a small, remote mine.

The Inyo Gold Mines include:

- Schwab, a mining campsite in the Funeral Mountains which includes the remains of several wooden buildings, mines, and associated artifacts. It was nominated to the National Register in 1980.
- Echo Canyon Townsite, a short-lived mining camp dating from about 1907, is often confused with Schwab. The site does not possess historical significance.

Furnace Mine is a property that is patented and possesses some interesting remains, including a dragway with winch and a crude smelter.

Inyo Mine a complex dating primarily from the 1930s, but it originated during the Bullfrog-Rhyolite boom early in the century.

The Bullfrog Hills area lies 25 miles north of headquarters at Furnace Creek. This portion of Death Valley lies in the State of Nevada is referred to as the "Nevada Triangle." The "Nevada Triangle" contains low hills and basins and does not provide unique landforms, scenery or natural phenomena to the extent provided by other areas in Death Valley. However, the opportunity to observe a large, ecologically intact expanse of the Mojave Desert is unexcelled elsewhere in the region.

The Original Bullfrog Mine is a patented property near Rhyolite that is significant because its discovery touched off a major mining boom and early 20th century development of the Bullfrog Mining District. It is probably the single most significant mining site in Death Valley from the standpoint of historical occurrence, although the structural remains above ground are not impressive. It was listed on the National Register of Historic Places in 1980. The Homestake-King Mine was a major mining complex that included a massive mill in the Bullfrog Mining District. Only ruins and foundations of the mill stepped down a Mountainside remain, along with the usual shafts and remains of smaller structures. The mere size of the plant suggested by its remains indicates that it was probably historically significant. It was listed on the National Register of Historic Places in 1981.

The proximity of the Gold Bar and Homestake-King properties is fortuitous since they represent opposite extremes in turn of the century mining efforts. The Homestake was a relatively honest operation while the Gold Bar was riddled by fraud. The properties are of further significance because they are the sites of the only mills constructed during the Bullfrog boom within the present day park boundaries.

4. Warm Spring Canyon, Skidoo. An ore processing mill in the canyon possesses historical significance. Warm Spring, one of the two best springs in the park, south of Telescope Peak, is on Continental's GOLD HILL NO. 2 MILL SITE claim. Flow is approximately 50 gallons per minute of 94 degree Fahrenheit water. The presence of a perennial source of surface water with nearly constant discharge has created a very special oasis in the desert. Nearly two acres at Warm Spring is covered by a growth of wild grape, *Vitis californicus*, and giant reed, *Phragmites*



communis. It is more than two miles to each of the next three closest springs, to the south, west and north.

Skidoo was founded in 1906 in the Panamint Mountains. This site consisting of the remains of a town, graves, mines and prospects, a stamp mill, and pipeline  $\frac{3}{4}$  probably representing the most significant mining community within the park. This site was listed on the National Register in 1974.

5. Amfac Properties. The two Amfac Properties, Furnace Creek Inn and Ranch, comprise an extensive man-made oasis. Together they offer a full range of resort facilities, including golf, tennis, swimming, horseback rides, and entertainment. There are several restaurants, laundry and shower facilities, a general store, post office, and gas station. The privately owned Borax Museum within Furnace Creek Ranch displays artifacts related to mining. An airstrip (lighted for night use) is adjacent to the ranch. Many visitors assume the ranch is an NPS concession and bring their problems to the park staff. Although the Park Service has no authority over the operations, the owner and the Park Service cooperate in resolving problems of mutual interest.
6. Amargosa Valley. Two private parcels totaling 1,920 acres occur in the valley east of the Funeral Mountains and about 6 miles west of Highway 127, about a mile from the state line. The parcels occur on a gently sloping creosote bush slope that is within designated wilderness. The Amargosa River channel traverses the center of the parcel and numerous wells are shown on the USGS quadrangle. Some mining prospects are also shown. Current threats are unknown.
7. Saline Valley. Three parcels totaling approximately 1,263 acres occur along the Saline Valley road at the mouth of Hunter Canyon. The parcels occur on the valley floor north of the Salt Lake and include several hundred acres of mesquite groves and salt pan vegetation. One 40-acre parcel includes mostly area shown as water on the USGS quadrangle. The area is extremely fragile and highly visible to visitor traffic in Saline Valley. The parcels are entirely excluded from wilderness. Current threats are unknown.
8. Panamint Springs. There are two private parcels at Panamint Springs, along State Highway 190. One 40-acre parcel is partially developed with a restaurant, small hotel, airstrip, gas station, and small camping area. In this area, designated wilderness is 300 feet north side of the highway. A small portion of this parcel would be within the boundaries of wilderness.

The other 220-acre parcel is just to the southwest of the above parcel and occurs on the rugged slopes of the Argus Range within designated wilderness. Current threats are unknown.

9. Jackass Flat (Saline Range). This parcel is approximately 155 acres and lies just east of the southern end of Jackass Flat in the Saline Range. The parcel is not within designated wilderness. There is at least one structure on the property. Current threats are unknown.
10. SW Funeral Mountains. This parcel is approximately 228 acres and lies in the southern end of the Funeral Mountains, just southeast of the Red Amphitheater in designated wilderness. It appears to be on a rugged mountain slope with no existing access. Current threats are unknown.
11. Goler Canyon (Myers Ranch). This 40-acre parcel lies in the very southern end of the Panamint Range, at the head of Goler Canyon, in a very isolated portion of the park. The property contains several buildings and springs labeled as Myers Ranch on the USGS quadrangle, near Sourdough Spring. The parcel is within designated wilderness. Current threats are unknown.
12. Other Patented Mining Claim Groups. The Ibex Hills section of Death Valley is perhaps the most desolate region within the park. Dominated by the dry sink of the Amargosa River, the landscape



consists mostly of sand, salt, and the low Ibex Hills. The region has always been isolated from any centers of population, however small, and the present road network completely bypasses it.

Current aesthetic appeal of the area includes marsh and spring habitat and associated wildlife, sand dunes, salt flats, rugged mountains with relatively undisturbed canyons to explore, valley vistas, and solitude.

Visitation to the area is low and is generally focused in two areas; the Ibex Dunes and Saratoga Springs. The isolation and quiet solitude of the area provides a major attraction. Some are attracted by the unique physical and biological aspects of the spring and surrounding hills, including the pupfish and large variety of bird life that abounds in the area.

The Ibex Hills have received some impact on their pristine character by the presence of the Superior Mine and other smaller talc operations. On the whole the past activity presents a visual intrusion only to the visitor who ventures into the hill's interior.

Currently no mining activity takes place within several miles of the Ibex Hills and small amounts of traffic travel the road from Ashford Mill to the spring. As a result, this portion of the park is nearly free of noise from man's activity, with the exception of military overflights. However, a proposal for an underground talc mine on unpatented claims in wilderness is currently under review by the park.

One 34-acre parcel and one 5-acre parcel are the only patented claims in the Ibex Hills.

The Saddle Rock Group is located in the Skidoo Mining District on the east slopes of Emigrant Canyon. The five lode claims, at an elevation of about 4,800 to 5,400 feet, were recorded on August 11, 1913. Development consisted of three tunnels and five shallow shafts. There is no record of production for the site, and it would appear that all the shafts, adits, and minor cuts in the vicinity were purely exploratory.

Gold Hill is one of the earliest mining areas within the old monument, its discovery being the natural result of exploration by miners out of the South Park District around Panamint City who were moving into the Butte Valley and Panamint Range area. Gold Hill's ore was evidently first processed at Arrastre Spring, and then later at the mill at Warm Spring. The Panamint Treasure Mine is also located near Gold Hill, a high summit north of Warm Spring Canyon and west of Galena Canyon. Gold Hill is located in the Panamint Mining District, which turned out mostly gold, lead, and silver. A mining camp was started here in 1889 and the area seemed rich enough in gold ores to warrant construction of reduction works of some sort. The mine workings consist of adits and the ruins of some sort of stone structure. There are three 20-acre patented claims just south of Gold Hill.

The Gold King Mine is located one mile east of Journigan's Mill in Emigrant Canyon. The Extension lode joins the east end of the Gold King. During the historical survey in April 1978 a few shafts, dugouts or storage pits, and level building sites were found. The wash is gradually filling the area with gravel and silt. Evidently dating from the 1930s, the area does not have much historical interest.

In upper Greenwater Valley near the old Greenwater townsite is a large 410-acre block of patented mining claims that was brought into the park with the 1994 expansion. This site appears to have numerous mining prospects associated with the short-lived copper mining in this area. Although there is no current mining on the property, current threats are unknown.

At the mouth of Copper Canyon in the Black Mountains is a 41-acre patented claim. Current threats are unknown.



In a small drainage on the southern side of Wildrose Canyon is a 42-acre patented parcel commonly referred to as the Monopoly group. This claim has been inactive for many years and current threats are unknown.

Surprise Canyon (Panamint city). In the upper reaches of Surprise Canyon, in the vicinity of Panamint townsite, and in adjoining Woodpecker Canyon, are numerous patented mining claims totaling about 262 acres. This area was added to the park in 1994 and includes extensive mine workings, structures, prospects, roads and other features associated with the mining heyday. Current threats are unknown.

Pleasant Canyon (Panamint Mountains). In the upper reaches of Pleasant Canyon there is a 70-acre patented parcel that appears to be in the park. However, the park boundary also excludes a road corridor leading to the Porter Mine and a land parcel that appears to include the mine. It is difficult to determine with current information if they are the same properties. The 70-acre parcel appears to coincide with the Cooper Mine, about a half mile south of the Porter Mine. This area is within the park and is excluded from wilderness.

Crystal Hills (southwest Owlshead Mountains). In the extreme southwestern corner of the park is a portion of the boundary that protrudes into the China Lake Naval Weapons Center. In this area is a 728-acre patented mining claim parcel that overlies the majority of the Crystal Hills. There is no current activity and current threats are unknown.

### **3. Mineral Rights (6,464 acres est.)**

There are approximately 338 unpatented mining claims within the park totaling an estimated 7,000 acres and 7 parcels of land with reserved mineral rights totaling approximately 4,503 acres. Many of these claims have had historic mining activity. The number of unpatented mining claims fluctuates constantly as owners stop filing required annual notices or stop paying on annual maintenance fees which are due by August 31st each year to retain an ownership interest in their claims. See "Land Protection Plan" appendix B: "Unpatented Mining Claim Groups" for a listing as of July 1997.

## **B. COMPATIBLE AND INCOMPATIBLE USES**

The preservation of unimpaired natural systems, resources and cultural resources is the essential management objective of park units. Commercial uses generally are incompatible with the accomplishment of that objective. Mining may potentially affect pristine desert scenery and disrupt the natural system through additional vehicular access and noise, lights, odors, and possible reduction of water quantity, quality and air quality.

### **Disclaimer**

The land protection planning process requires that the National Park Service determine activities on nonfederal land that would be incompatible with park management objectives, IF such uses were proposed or carried out. The listing of incompatible activities in this LPP does not constitute a prohibition of such uses. The National Park Service has limited existing regulatory authority to preclude such incompatible activities. Rather, the listing of incompatible activities is intended to provide a reasonable basis for determining where, and under what circumstances, the National Park Service would seek funding to acquire nonfederal lands.

### **Compatible Uses**

In the short term, the National Park Service recognizes that some uses on private or state lands would not preclude ultimate accomplishment of park management objectives. However, over the long-term, the continued use of private land for the following purposes would likely preclude accomplishment of scenic



and ecological objectives of the park units and should be gradually eliminated. However, given the scale of these uses in relation to park size, many impacts may be limited and temporary, and the lands and natural systems susceptible to restoration when the uses are terminated.

The following uses are considered to be compatible on a short-term basis:

1. Routine maintenance and repair of private dwellings and existing associated structures.
2. Minor modifications to existing structures.
3. Replacement of roofing and siding with materials that are compatible with scenic values.
4. Reconstruction in kind of damaged or destroyed structures.
5. Replacement of a structure that is purposefully removed by a structure of equal size and design that serves the same purpose and occupies essentially the same site as the removed structure.
6. Camping or temporary parking of motorhomes on private lands.
7. Erection of no trespassing signs, fences and gates to prevent trespass.
8. Use of, or construction or installation of utilities, including roads, on federal lands to gain access to nonfederal property that provides the owner with reasonable use and enjoyment of their land, in accordance with Section 708 of the California Desert Protection Act, with minimum disruption to federal lands (access across NPS lands requires a permit).
9. Mineral development in connection with valid existing rights if such mining is under an NPS-approved plan of operations that meets the standards of approval of 36 CFR Part 9.
10. Grazing activities permitted by law that do not significantly impact park resources.

Approval of the National Park Service is required for numbers 9, and 10 permissible short-term uses of private lands.

### **Incompatible Uses**

The following uses of private property are incompatible with the management objectives of Death Valley National Park in both the short and long-term:

1. Activities that impair the integrity of a site, building or object that is listed on the National Register of Historic Places.
  2. Mineral development activities that do not comply with all requirements and standards specified under applicable NPS regulations.
  3. Duplicative commercial activities, other than National Park Service regulated mining, such as businesses, stores, food and lodging establishments.
  4. Erection of billboards.
  5. Establishment of sites for the disposal of solid waste, whether hazardous or non-hazardous.
  6. Activities such as removal of natural vegetation, earth moving or the like that significantly disrupt natural or cultural resources, or the visual quality of the park.
  7. Activities that create a hazard or that endanger the safety of park staff or visitors.
  8. Replacement of a major structure with one that is substantially different in size, location, appearance, or purpose from its predecessor.
  9. Splits in ownership or sell-off of portions of the land wherein development or initiation of new uses affecting park resources is contemplated.
- Grazing activities that significantly impact park resources.

### **C. Acquisition History**

When Death Valley National Monument was established on February 11, 1933, thousands of acres of land were in nonfederal ownership. Acquisition of these lands through purchase, exchange, etc. was initiated. With passage of the California Desert Protection Act in October 1994, thousands of additional acres of nonfederal lands and interests were added to the park. The number of acres acquired since 1933 is as follows:



Acquisition Method	Acquired Acres
Purchase	10,922.13
Complaint in Condemnation	971.60
Declaration of Taking	0.00
Donation	2,010.00
Exchange	33,325.31
Total Acquisition	47,229.04
Total Federal Acres	3,344,331.00
Nonfederal Acres Remaining	51,841.00
Total Acres in Park	3,396,172.00

Land acquisition expenditures at Death Valley National Park so far has totaled \$3,025,396.

#### **D. Acquisition Ceiling**

Sec. 901 of the California Desert Protection Act imposes a ceiling of \$300,000,000 for all land acquisition costs associated with the three National Park Service administered areas (including Death Valley, Mojave and Joshua Tree) and the Bureau of Land Management administered wilderness areas created by the California Desert Protection Act.

### **IV. AVAILABLE LAND PROTECTION AND ACQUISITION OPPORTUNITIES**

#### **A. Land Protection Options**

##### **Protection Alternatives**

A number of land protection alternatives have been considered in arriving at the recommended methods. Factors influencing the methods considered and selection of the recommended plan include cost-effectiveness, long term goals, degree of compatibility of private ownership, the type of jurisdiction, and consideration for long established owners. The preferred alternative for land protection must assure preservation and restoration of the natural environment, protection of historic and prehistoric values, and enhance public enjoyment of the parks.

Potential protection alternatives are discussed below.

##### **1. Agreements**

Agreements are legal instruments defining administrative arrangements between two or more parties. The instrument can provide for the exchange of services or benefits between the parties. Terms of agreements relevant to land protection might include:

- Compatible and incompatible land uses.
- Management of natural and cultural resources.
- Responsibility for maintenance.
- Law enforcement responsibilities.



Agreements are most useful as interim land protection methods where there is a coincidence of interests between the parties. Because they can be terminated by either party, agreements are generally not acceptable as long term protection methods, particularly in the case of lands intended for preservation in their natural state. They can be very useful as short term protection instruments. They may have some application for both private and public lands.

## **2. Regulations**

### **Local Land Use Regulations Use**

Private lands in the park fall under the jurisdiction of Inyo, Mono and San Bernardino counties in California, and Nye and Esmeralda counties in Nevada. The counties adopt and enforce land use regulations that control the type and density of land use and development on private property, and ensure adherence to basic public health and safety standards. Regulation is intended to provide generally for the control of economic uses of land and to mitigate to the extent possible the adverse effects of such uses. It is not an appropriate or useful long-term protection method for lands intended for preservation or restoration of natural conditions. However, land use regulation does have potential as an interim protection method for developed areas planned for restoration but where land acquisition is expected to require many years.

### **National Park Service Regulations (36 CFR Parts 1-5 and 7)**

Death Valley National Park is an area of proprietary Federal jurisdiction. The level of jurisdiction that the United States holds on its lands is immaterial to the ability of the United States to manage and protect Federal lands. However, in areas of proprietary jurisdiction, the National Park Service decided in rulemaking that regulations in 36 CFR Parts 1 through 5 and 7 would apply only to Federal lands. An exception, adopted on July 5, 1996, permits the application of NPS rules in 36 CFR Parts 1-5 and 7 to nonfederal lands in a proprietary jurisdiction park, IF such nonfederal lands are subject to a written agreement with the owner.

In addition, if the State of California ceded some, or all, of its jurisdiction over nonfederal lands in the park to the United States, then ten of the NPS regulations at Parts 1-5 and 7 would apply to conduct on private lands. Even then, the applicable regulations deal with wildlife protection, fires, disorderly conduct, weapons and similar conduct. The National Park Service possesses no general regulations on "land use" or development that would apply to the nonfederal lands even if the park were an area of concurrent or exclusive jurisdiction.

### **National Park Service Regulations (36 CFR Parts 6 and 9)**

National Park Service regulations at 36 CFR Part 6 (Solid Waste Sites) and at 36 CFR Part 9A (Mining Claims) apply to all lands in every park without regard to the level of jurisdiction that the United States holds over an area. Parts 6 and 9 apply to the nonfederal land within Death Valley National Park. The application of 36 CFR Parts 6 and 9 would prohibit or otherwise restrict certain proposed land uses on nonfederal (and Federal) lands within the park. Parts 6 and 9 of 36 CFR provide a certain level of resource protection, short of acquisition. Section 519 of the California Desert Protection Act (16 U.S.C. 410aaa-59) states that, until acquired by the United States, nonfederal lands within the boundaries of National Park System units designated or enlarged by the Act are not "subject to any of the rules or regulations applicable solely to the Federal lands within such boundaries." The rules at 36 CFR parts 6 and 9 apply to all lands within areas of the National Park System boundaries and are not applicable solely to Federal lands within such areas. Thus, the application of Parts 6 and 9 to nonfederal lands within the boundaries of Death Valley National Park does not conflict with Section 519 of the California Desert Protection Act.



Regulations at Part 9, in particular, generally provide for the control of mining uses and to mitigate, as far as possible, the adverse effects of such activity on parks. Since the primary objective of the park is to preserve and restore natural systems, the conduct of mining, no matter how closely controlled or regulated, may be inconsistent with management objectives in some places. Regulation of mining has great value as an interim protection method in the event that more effective methods are not implemented in the future.

Regulations at Part 6 prohibit the establishment of new sites for the disposal of solid waste on any lands within the park, except for sites that generate waste solely from National Park Service activities.

### **U.S. Fish & Wildlife Service Regulations**

U.S. Fish and Wildlife Service regulations at 50 CFR Part 17 implement the provisions of the Endangered Species Act (16 U.S.C. 1531, et seq.). These regulations prohibit persons from causing "harm" to Federally-listed species. "Harm" is defined to include significant habitat modification or degradation that actually kills or injures wildlife. The Endangered Species Act prohibits persons from taking, including "harming" listed species. However, persons may obtain a permit from the Secretary of the Interior to "take" listed species, "If such taking is incidental to, and not the purpose of, carrying out an otherwise lawful activity." (16 U.S.C. 1539(a)(1)(B)).

Persons proposing to develop nonfederal lands within the park that may result in harm to listed species or habitat listed as critical, need to obtain a permit from the U.S. Fish and Wildlife Service prior to undertaking such development. This permitting process, while not aimed at controlling the use of land, could affect the methods and extent to which a person may develop lands in the park where listed species or their habitat exist.

### **3. Less-than-Fee Acquisition**

Less-than-fee acquisition involves acquiring only a portion of the rights of ownership of a tract of land. For example, scenic easements may be acquired to protect landscapes by limiting the owner's use of his land, or rights-of-way may be acquired to permit construction of roads, trails, pipelines, etc. The primary value of less-than-fee applications in park situations is where some degree of private economic activity, e.g. farming, ranching, etc., is consistent with park objectives.

In some National Park Service administered areas, where preservation of a pastoral historic scene is a primary management objective, scenic easements represent a highly desirable form of protection method, permitting continuation of agricultural land uses which contribute to the purposes of the unit. However, in the case of Death Valley, these objectives are not identified in the legislation, and therefore, less-than-fee instruments have limited utility.

### **4. Fee Acquisition**

Fee acquisition is appropriate where the park objectives are preservation and restoration of the natural systems, and there are no compatible private land uses.

## **B. Acquisition Options**

### **1. Private Lands**

The National Park Service can acquire interests in private land through several different methods.

- a. Purchase with donated or appropriated funds.
- b. Donation of lands or interests in land. Landowners with substantial taxable incomes are sometimes interested in this method as the Internal Revenue Code allows certain tax deductions for donation of land or interests in land for approved conservation purposes, including National Parks. Landowners should consult their accountants and attorneys for specific tax advice on contemplated donations.
- c. Bargain Sale. A bargain sale is a partial donation where the landowner agrees to sell for less than full value and the difference may be treated as a charitable contribution that may provide tax benefits.



- d. Exchange. Land exchanges offer surplus federal lands elsewhere in California for property in the parks. The feasibility of this type of exchange is dependent on the availability of other federal lands and its prospective utility to the landowner.
- e. Condemnation. The federal government has the authority to acquire private property through the Federal Court system when needed for public purposes or to prevent resource damage. This method is used where the owner and the National Park Service cannot reach agreement on price. It is also used in some cases to clear title or where land owners are unknown or cannot be located. Just compensation is determined through the judicial process.
- f. Acquisition with Reservation of Use and Occupancy. Owners of developed properties can in some cases sell their property to the National Park Service and at the same time reserve the property's use for either a period of up to 25 years or for life. The purchase price is reduced to account for the reserved period of continued use.

## **2. Public Lands**

Although Congressional guidelines on the acquisition of lands owned by State and local agencies generally favor donation, the policy toward State "school sections" permits acquisition by either exchange or purchase, with a preference for the use of exchange. State school lands in Death Valley National Park were specifically identified in the California Desert Protection Act as priority for exchange for excess federal property.



## V. SUMMARY OF ACQUISITION PROCEDURES

The Division of Land Resources assigned to the Pacific Great Basin Support Office in San Francisco is responsible for carrying out the land acquisition program. It will be guided by the Land Protection Strategy for each park unit as adopted through this planning effort and approved by the Regional Director.

The National Park Service is required by Secretarial Order 3127 to conduct a site assessment for hazardous materials on all properties being considered for acquisition. This process begins with a certified inspector completing a Level I checklist. If no evidence of previous hazardous materials use exists on the property or in the County, State or Federal records, the property is cleared for acquisition. If contamination is discovered or suspected, samples may be collected and analyzed at a licensed laboratory. Cleanup costs are considered the responsibility of the landowner.

The Service will obtain, at its expense, a preliminary policy of title insurance for each property which will identify the owner or owners of record and all encumbrances, such as mortgages, liens, judgments, right-of-way or other easements, affecting the property's title.

Each property will be appraised by an independent contract appraiser. The landowner and/or his/her representative will be offered an opportunity to accompany the appraiser on the inspection of the property in order to afford the owner an opportunity to point out significant features of the property.

To assure the quality of appraisals, a staff appraiser will review all reports for compliance with proper appraisal procedures and check such elements as the thoroughness of the research performed and whether or not the appraiser has afforded the landowner the opportunity to accompany the appraiser.

Appraisers will be required to furnish an objective estimate of the "Fair Market Value" of the lands being appraised. The Uniform Appraisal Standards for Federal Land Acquisitions defines Fair Market Value as "The amount in cash, or on terms reasonably equivalent to cash, for which in all probability the property would be sold by a knowledgeable owner willing but not obligated to sell to a knowledgeable purchaser who desired but is not obligated to buy."

As soon as possible after the appraisal of a property has been received, reviewed, and approved, the Service will submit to the owner, subject to the availability of funds, a written offer which will not be less than the Service's approved appraisal of the fair market value of the property. The owner will be provided with a copy of the Services' appraisal upon request. Assuming that a mutually acceptable purchase price is agreed upon, closing will normally be completed by a local title company acting as escrow and closing agent within 6 to 8 weeks of signature by the owner and the Service of an Offer to Sell.

It is the responsibility of the seller to convey clear title to the property being acquired. Under Public Law 91-646, the Service may reimburse sellers for expenses incurred such as:

1. Recording fees, transfer taxes, similar expenses incidental to conveying the real property.
2. Penalty cost for prepayment of any pre-existing recorded mortgage entered into in good faith encumbering the real property.
3. The pro rata portion of real property taxes the owner paid to cover the period after title was vested in the United States.

The Service may pay other similar expenses to the extent they are fair and reasonable, but the Service will not pay for costs necessary to clear defects in title to the property.



The Service will make every effort to seek negotiated settlement wherever possible; however, if this is not possible, eminent domain proceedings may be initiated.

Eminent domain proceedings are initiated by the filing of a complaint in condemnation in Federal Court. There are two general types of condemnation: complaint-only and complaint with a declaration of taking. The National Park Service generally uses the complaint-only type of condemnation to acquire land. In this type of action, title to the land does not pass to the government until the court or jury has determined the amount of just compensation and this amount has been paid to the owner. Eminent domain proceedings may be employed to resolve title problems or clear title, or when negotiations are unsuccessful and Fair Market Value is to be determined by the court.

In addition to the complaint in condemnation, declarations of taking are used where title to the land must be vested in the United States immediately in order to prevent resource damage or to clear title to land after a negotiated agreement has been reached with the owner.

A declaration of taking vests title to property in the United States immediately upon filing papers in the court and the deposit of an estimate of just compensation. A portion of this deposit may be withdrawn by the owner as approved by the court.

#### **Acquisition of Less-than-Fee Interests (Easements)**

The procedure for acquiring less-than-fee interest is the same as that described above for acquisition of fee interest except for the fact that the owner does not relinquish title and possession of the property.

## **VI. RECOMMENDATIONS**

This LPP recommends that the National Park Service acquire most nonfederal lands within the park in fee, except for State lands. State school sections are actively being exchanged for federal surplus property outside the park in accordance with CDPA direction.

The National Park Service has considered alternative means of land protection and concluded that only in limited instances would they meet the long-term management objective of the park, which is the preservation and restoration of lands in their natural condition, and the protection of cultural resources.

To the extent lands offered for sale may exceed the funds available to the National Park Service to acquire them, the National Park Service will give preference to acquisition according to the priority list that follows. There is no expectation that tracts can be acquired only in the order shown. These areas contain the greatest number of tracts, most of which are undeveloped and are in areas of high visitor use where development would be most apparent and disturbing to the scenic values.

#### **National Park Service priority for acquisition are as follows:**

It must be noted that none of these recommendations should be construed as proposing to prevent any acquisitions (by purchase, exchange or donation) now in progress nor are they offers to purchase land. Furthermore, the park should retain the option of acquiring any parcel within the boundary regardless of priority should a proposed use or development be judged incompatible or detrimental.

The following factors were considered in determining long term priorities for each tract within the park

1. Properties in wilderness
2. Relative resource quality
3. Resource vulnerability
4. Visibility
5. Legislative restriction (patents prior to Act of June 13, 1933)



6. Regulatory controls (Mining in the Parks Act)
7. Validity of unpatented claims
8. Visitor safety and visitor use conflicts
9. Environmental threats
  - a. dust
  - b. noise

\* If the holder of a grazing permit indicates a willingness to sell base property associated with a permit, the NPS would make the acquisition of such base property a priority compared with the acquisition of other lands (per CDPA section 306(b)).

Applying these factors to the nonfederal parcels, the following priorities were developed for geographic areas within the park.

Priority	Rationale
1. Lower Furnace Creek	Outstanding scenic attraction (1,2) Vulnerable (3) Pre-monument patents (5) Along primary entrance route (8) Current recreation use (8)
2. Upper Furnace Creek	Very scenic area, heavily used by visitors (1,2,8,9)
3. Galena Canyon	Very visible to visitors from scenic vista points and park roads (3,8)
Bullfrog Hills	Historic Areas (2,8)
Big Bell Group	Historic Areas (2,8)
Inyo Gold	Historic Areas (2,8)
4. Warm Spring Canyon, Skidoo	Visible to visitors, historic areas (3,8)
5. Remote small claim groups	wilderness (1) Relative resource quality (2) Susceptibility to disturbance (3,8)
6. Amargosa	Wilderness (1), visibility (4)
7. Saline Valley	Visibility (2), resource vulnerability (3)
8. Jackass Flat	Visibility (4), relative resource quality (2), resource vulnerability (3)
9. SW Funeral Mountains	Wilderness (1)
10. Goler Canyon (Meyer Ranch)	Wilderness (1), relative resource quality (2)
11. Panamint Springs	Wilderness (1), visibility (4)
12. Amfac Properties	Visibility (4), relative resource quality (2), resource vulnerability (3)

Adjustments can be made in these priorities at the time of updating of the "Land Protection Plan" and by the superintendent at any time the changing situation dictates.



## **APPENDIX C**

### **TIMBISHA SHOSHONE HOMELAND LEGISLATIVE ENVIRONMENTAL IMPACT STATEMENT DEFINITION OF USES AND ACTIVITIES**

**[Appendix C has not been updated since the draft LEIS released in May 2000, and therefore may not reflect revisions made in Volume I as a result of new information.]**







# **Appendix C**

## **Timbisha Shoshone Homeland**

### **Legislative Environmental Impact Statement**

#### **Definition of Uses and Activities**

#### **Introduction**

The following is a description of anticipated uses and activities within areas designated as transferred lands and cooperative activities in the Draft Secretarial Report to Congress to Establish a Permanent Tribal Land Base and Related Cooperative Activities (Timbisha Shoshone Tribe, USDI, June, 1999). The intent of these descriptions is to provide reasonable assumptions constituting upper limits for uses and activities which may have environmental consequences requiring analysis in the Legislative Environmental Impact Statement (LEIS).

These descriptions are not cast in concrete but are intended rather to focus a discussion between the Timbisha Shoshone tribe, affected agencies and the consultant preparing the LEIS. Descriptions are derived from information contained in the Draft Secretarial Report, with consideration to information which has been developed as part of the Affected Environment section of the LEIS. The descriptions address the following factors:

- Types of uses anticipated to occur
- Scale of development or activity
- Limiting environmental factors
- Seasonal or other limitations, potential conflicts
- Nature of Agreements
- Subsequent or future environmental analysis requirements
- Other considerations

For areas lacking descriptive information about proposed development or activities, “mock-up” project information is presented. This information should be refined or redefined to reflect the tribe’s intended uses, and allowable uses (per applicable plans and regulations) of transferred lands and in some cases, cooperatively managed areas.

#### **Furnace Creek Community Development Parcel**

##### *Types of Uses*

- Residential and tribal uses (tribal offices, multi-purpose facility, playground).
- Lodging and Conference facilities.
- Timbisha Museum and Gift Shop.
- Roads, parking areas.

##### *Scale of Development or Activities*

- Single-family, detached housing units.
- Tribal offices/multi-purpose complex.
- Playground.



- Lodge and conference facility.
  - will include on-site food preparation and hotel laundry facilities.
  - will include a restaurant with seating for 60.
- Museum and gift shop.
- Roads and parking lots.
  - entrance road and parking lots paved.
  - residential access roads graded, unpaved.

#### *Limiting Environmental Factors*

- Water availability.
- Proposed development parcels on somewhat disturbed land. Transition into desert habitats is abrupt.
- Some increase in impervious area; considered negligible.

#### *Seasonal or Other Limitations/Potential Conflicts*

- Commercial uses will be subject to seasonal fluctuations. No market analysis has been conducted. Assumption is that market will bear 50 additional lodging units. Restaurant would compete with Furnace Creek Ranch and possibly with Furnace Creek Inn.
- Amount of water which can be made available through conservation and reclamation, and use of existing sources is not determined.
- Development is described as promoting energy efficiency, water conservation and low-impact, environmentally sustainable operations. No specific figures on water or energy use available. Use of comparable numbers for other, similar local uses may not accurately reflect energy and water use in this development.

#### *Nature of Agreements*

- Cooperative agreement between National Park Service (NPS), park concessionaires and the tribe will condition the intensity and possibly elements of development at Furnace Creek.

#### *Subsequent or Future Environmental Analysis*

- Probably not required unless scale of development changes substantially from that described in the LEIS.

#### *Other Considerations*

- Market analysis for type and intensity of lodging, dining and retail gift shop would assist in scaling to existing and projected market conditions.
- Electrical energy use is not considered a limitation.

### **Mesquite Use Area, Buffer Area(s), and Adobe Restoration Area**

#### *Types of Uses*

##### Mesquite Use Area

- Harvesting of mesquite beans.
- Vegetation management (tamarisk removal, mistletoe management, thinning, pruning, sand management).
- Regulated public access for cultural hikes and tours of mesquite groves.



Buffer Areas (between community development area and highway; between lodge and Furnace Creek)

- Restriction or elimination of visitor use.

Adobe Restoration Area

- Restoration of existing adobe residential structures.
- Vegetation management (tamarisk removal).

#### *Scale of Development or Activity*

- No new structures have been identified.
- Substantial alteration of vegetation through removal of tamarisk stands.
- No activities identified in the buffer areas. Potential exists for modification of conditions in Furnace Creek if vegetation management is conducted to favor or control certain riparian and aquatic species.

#### *Limiting Environmental Factors*

- None. Effects on Mesquite Use Area and Adobe Restoration Area consistent with Park management objectives. Tamarisk removal will have a beneficial effect on groundwater conditions relative to native vegetation.

#### *Seasonal or Other Limitations/Potential Conflicts*

- Vegetation management in Furnace Creek (not specified) could have seasonal effects.
- Vegetation management in Furnace Creek (not specified) could be subject to regulation.

#### *Nature of Agreements*

- Cooperative agreement between NPS and the tribe for practices to be adopted in the Mesquite Use Area.
- Cooperative Agreement between NPS and the tribe for activities (management and restoration) in the Adobe Restoration Area.
- Access to the State Route (190) exists; Right-of-way may need to be formalized with NPS and Caltrans.

#### *Subsequent or Future Environmental Analysis*

- Legislation authorizing restriction of visitor use to identified areas would address technical issue of access.
- Consistency determination with Park management objectives would need to be made following agreement on cooperative activities. If not consistent, additional environmental review could be required.

#### *Other Considerations*

- None identified.

### **Timbisha Shoshone Natural and Cultural Preservation Area**

#### *Types of Uses Anticipated to Occur*

Hunter Mountain (Nelson Range)

- Traditional camps (summer use).
- Pinon nut gathering.



- Medicinal plant gathering.

#### Saline Valley Springs and the Indian Rancheria

- Management of springs (pilot project).
- Tribal camping area (winter use).
- Cooperative management of access to the springs by NPS and the Tribe.

#### Wildrose

- Tribal “resource management field office”, garage, and storage area within area of existing ranger station.
- Seasonal camping (not permanent) in suitable areas.
- Pinon nut gathering.
- Medicinal plant gathering.

#### Mesquite Springs and Daylight Pass (and Travertine Spring)

- Visitor-related services, or information at one of these locations (assumed to be a small retail store/information booth).
- Access to springs and pass area to participate in resource protection activities at all three locations.

### *Scale of Development or Activity*

#### Hunter Mountain (Nelson Range)

- Camping.
- No permanent improvements (buildings, new roads, etc.).
- Access to wilderness area for purposes of gathering.

#### Saline Valley Springs and Indian Rancheria (pilot project)

- No specific uses defined.
- Assumed to include removal of some or all unauthorized encampments.
- Development of a regulated access program to a portion of the springs.
- Environmental (biological) restoration of springs (debris removal, plantings, vegetation management).

#### Wildrose

- Resource Management Office.
- Garage.
- Storage building.
- Fenced storage yard.
- Seasonal camping.
- No permanent campground improvements.
- Access to wilderness area for purposes of gathering piñon nuts, food and medicinal plants.

#### Mesquite Springs and Daylight Pass

- Information booth/small retail store (assumes electricity is available; water would be trucked in).
- Gathering of food plant materials at Daylight Pass.
- Vegetation management and restoration activities (assumed to include removal of exotics and planting of native species) at Mesquite Springs and Travertine Spring.
- Visitor-serving booth at Mesquite Springs (information).
- Exclusive use of Mesquite Springs for Tribal activities during specified periods.



### *Limiting Environmental Factors*

#### Hunter Mountain

- Road accessibility.

#### Saline Valley and Indian Rancheria

- Potential issues with wetlands/waters of the US, if springs are altered.

#### Wildrose

- None identified.

#### Mesquite Springs and Daylight Pass (and Travertine Spring)

- Potential issues with wetlands/waters of the US, if springs are altered.

### *Seasonal or Other Limitations, Potential Conflicts*

#### Hunter Mountain

- Only seasonal use (summer) anticipated.

#### Saline Valley and Indian Rancheria

- Full-time presence.
- Current uses represent potential conflict with Tribal uses.

#### Wildrose

- Only seasonal use (summer) anticipated in camping area.
- Resource Management Office would be active year-round.

#### Mesquite Springs and Daylight Pass (and Travertine Spring)

- Information/retail would be open during peak tourist season.
- Use of springs not season-dependent.
- Resource protection activities may have seasonal limitations.

### *Nature of Agreements*

#### Overall

- Designation of Timbisha Natural and Cultural Preservation Area.
- Joint BLM/NPS/Timbisha Management Plan for Natural and Cultural Preservation Area.

#### Hunter Mountain

- Covered by joint BLM/NPS/Timbisha Management Plan for Natural and Cultural Preservation Area.

#### Saline Valley and Indian Rancheria

- Covered by joint BLM/NPS/Timbisha Management Plan for Natural and Cultural Preservation Area.
- Specific agreement and joint activities (NPS/Timbisha) to develop and implement a pilot project for management of Saline Valley Springs.

#### Wildrose

- Covered by joint BLM/NPS/Timbisha Management Plan for Natural and Cultural Preservation Area.

#### Mesquite Springs and Daylight Pass (and Travertine Spring)

- Specific agreement and joint activities (NPS/Timbisha) for resource protection activities at Mesquite Springs, Daylight Pass and Travertine Spring.

### *Subsequent or Future Environmental Analysis Requirements*

#### Overall

- Designation of Timbisha Natural and Cultural Preservation Area would not trigger additional review (assumes that tribal activities would be conducted at areas identified within the plan area).



- Joint BLM/NPS/Timbisha Management Plan will require review to assess consistency with existing management plans in force for the respective agencies. If plans require amendment, NEPA could be triggered.

#### Hunter Mountain

- If found to be consistent with Death Valley National Park Management Plan, no additional review will be required.

#### Saline Valley and Indian Rancheria

- Depending on nature of future activities additional review may be required. Cooperative Management agreement may trigger NEPA process for NPS.

#### Wildrose

- If authorized by legislation, no further review anticipated.

#### Mesquite Springs and Daylight Pass (and Travertine Spring)

- Depending upon nature of resource protection activities, consistency with Park Management Plan may need to be evaluated.

### *Other Considerations*

#### Hunter Mountain (Nelson Range)

- “Traditional cultural camp” assumed to equate to the activities undertaken while camping, not the type of dwelling. Harvesting of plant materials for construction of camp shelters is not anticipated

#### Saline Valley and Indian Rancheria

- There is likely to be controversy with any course of action taken to alter current conditions and activities at Saline Valley Springs.

#### Wildrose

- Uses at Resource Management Office, garage and storage area may require coordination of activities at ranger station.

#### Mesquite Springs and Daylight Pass (and Travertine Spring)

- None identified.

### **Death Valley Junction**

#### *Types of Uses Anticipated to Occur*

- Visitor/Travel services.
- Residential uses.

#### *Scale of Development or Activity*

- Service station/convenience store (propane, gasoline, diesel).
- Gift/souvenir shop.
- Single-family, detached housing units.

#### *Limiting Environmental Factors*

- Water availability, water quality.
- Within Chicago Valley Wild Horse Herd Management Area.

#### *Seasonal or Other Limitations, Potential Conflicts*

- Seasonal fluctuation in water supply.
- Demand for services will fluctuate with tourist season.



#### *Nature of Agreements*

- Land Transfer of approximately 1,000 acres from BLM to be held in trust for the Tribe.

#### *Subsequent or Future Environmental Analysis Requirements*

- None identified.

#### *Other Considerations*

- Specific information on existing land uses south and southwest of the intersection of State Highways 127 and 190 is lacking.
- Landing strip is shown roughly parallel to eastern boundary, south of State Highway 190. If active, landing strip could influence development potential for adjacent acreage on tribal land.
- A treatment system for ground water may be necessary to address marginal water quality.
- Assumptions for residential resource requirements the same as for Furnace Creek on a per unit basis.

### **Centennial**

#### *Types of Uses Anticipated to Occur*

- Residential.

#### *Scale of Development or Activity*

- Single-family, detached housing units.

#### *Limiting Environmental Factors*

- Water availability (quantity and quality not fully determined).

#### *Seasonal or Other Limitations, Potential Conflicts*

- Water rights to surface water sources in area are held by others (Legislation would authorize purchase of surface water rights on Tribe's behalf).

#### *Nature of Agreements*

- Land Transfer of 640 acres from BLM to be held in trust for the Tribe.

#### *Subsequent or Future Environmental Analysis Requirements*

- Assuming water availability is resolved and the land is used for residential and tribal food-gathering purposes, no additional environmental review would be required.

#### *Other Considerations*

- Residents in Darwin (8 miles east, about 500 feet lower in elevation) are concerned that withdrawals of groundwater from Centennial Flat area may affect local water supplies.
- Assumptions for residential resource requirements the same as for Furnace Creek on a per unit basis.



## **Eagle Mountain and Warm Sulphur Springs**

### *Types of Uses Anticipated to Occur*

- Tribal ceremonial uses.
- Cooperative resource protection and restoration (Warm Sulphur Springs).

### *Scale of Development or Activity*

- No permanent development at either site.
- Restoration of spring would be conducted jointly by BLM and tribe.

### *Limiting Environmental Factors*

- Warm Sulphur Springs is designated an Area of Critical Environmental Concern by BLM.

### *Seasonal or Other Limitations, Potential Conflicts*

- If activities are consistent BLM management goals for sites, no conflicts would occur.
- Seasonal limitations on restoration activities at Warm Sulphur Springs may be necessary.

### *Nature of Agreements*

- Cooperative Agreement between BLM and the tribe to designate allowed uses and cooperative activities.

### *Subsequent or Future Environmental Analysis Requirements*

- If a restoration plan or management plan for Warm Sulphur Springs includes substantial modification of the Springs or associated areas, NEPA may be triggered by BLM.

### *Other Considerations*

- These sites are managed by two separate BLM field offices (Ridgecrest and Barstow).

## **Scotty's Junction**

### *Types of Uses Anticipated to Occur*

- Residential.
- Travel-serving business.
- [agricultural use discussed, not specifically proposed.]

### *Scale of Development or Activity*

- Service station/convenience store (propane, gasoline, diesel).
- Gift/souvenir shop.
- Single-family, detached housing units.

### *Limiting Environmental Factors*

- None identified.

### *Seasonal or Other Limitations, Potential Conflicts*

- No seasonal limitations.
- Potential conflicts between tribal uses of water and existing or proposed users.



#### *Nature of Agreements*

- Land Transfer of 2,800 acres from BLM to be held in trust for the Tribe.
- Allocation of water rights by Nevada State Engineer.
- Access rights to Nevada State Route 72 and US Highway 95 from Nevada DOT.

#### *Subsequent or Future Environmental Analysis Requirements*

#### *Other Considerations*

- Certain uses (*i.e.* casino) would require a compact with the Governor of Nevada.
- Land cultivation could substantially reduce or eliminate water available for residential or other uses.
- Assumptions for residential resource requirements the same as for Furnace Creek on a per unit basis.

### **Lida Nevada—Tribal Community Parcel**

#### *Types of Uses Anticipated to Occur*

- Roadside (travel-serving) retail.
- Ranching (cattle).
- Residential.

#### *Scale of Development or Activity*

- Retail convenience store/market.
- Ranching improvements.
- Single-family, detached housing units

#### *Limiting Environmental Factors*

- Water availability.

#### *Seasonal or Other Limitations, Potential Conflicts*

- No seasonal limitations.
- Potential conflicts with mining uses on nearby lands.

#### *Nature of Agreements*

- Land Transfer of approximately 2,800 acres from BLM to be held in trust for the Tribe.
- Legislation would authorize purchase of surface water rights from existing holders.

#### *Subsequent or Future Environmental Analysis Requirements*

- None identified.

#### *Other Considerations*

- Travel-serving business may require agreement for access to State Route 266 with Nevada DOT.
- Assumptions for residential resource requirements the same as for Furnace Creek on a per unit basis.



## **Lida Nevada—Tribal Use Area**

### *Types of Uses Anticipated to Occur*

- Pinon nut gathering.
- Resource protection activities (vegetation management at springs).
- Protection of burial sites.
- Education program for non-tribal pinon nut gathering.
- Cooperative management of pinon pine resources.

### *Scale of Development or Activity*

- No permanent development.
- Vegetation management at selected spring locations.
- Exclusion fencing at burial sites; maintenance of sites.
- Cooperative development and implementation of pinon pine management plan with BLM for entire site.

### *Limiting Environmental Factors*

- Activities in springs may be subject to review by BLM for consistency with applicable management plans.
- Access to springs assumes that water rights would not preclude access or alteration of conditions at springs.

### *Seasonal or Other Limitations, Potential Conflicts*

- Activities in springs may have seasonal limitations related to breeding/use by wildlife.

### *Nature of Agreements*

- Cooperative agreement between BLM and Tribe for management and education activities at site.
- Agreement to collaborate and jointly prepare and implement a pinon pine management plan for the area.

### *Subsequent or Future Environmental Analysis Requirements*

- If cooperative management activities are determined to be consistent with applicable BLM management plans and policies, no further environmental review would be required.
- If management of springs constitutes an activity in wetlands/waters of the US, permitting for management activities by US Army Corps of Engineers may apply.

### *Other Considerations*

- None identified.

## **Lida Ranch, Lida, Nevada**

### *Types of Uses Anticipated to Occur*

- Residential.
- Agriculture.
- Tribal Retreat.
- [businesses mentioned in proposal; none identified].



*Scale of Development or Activity*

- Dry farming on arable land (estimated 50 acres).
- Cattle grazing, estimated at 100 animals, sustained.
- Tribal Retreat, including:
  - Camping area.
  - Food preparation/multi-purpose room.

*Limiting Environmental Factors*

- None identified.

*Seasonal or Other Limitations, Potential Conflicts*

- Year-round use, no seasonal limitations.

*Nature of Agreements*

- Legislation will authorize purchase of the privately-held 2,430-acre Lida Ranch, to be held in Trust for the Tribe.
- Acquisition of water rights from current owners.

*Subsequent or Future Environmental Analysis Requirements*

- None identified.

*Other Considerations*

- Intensity or range of activity for tribal retreat not described.
- “Businesses” mentioned in proposal, not described. Assumption is that no environmental review will be required.
- Assumptions for residential resource requirements the same as for Furnace Creek on a per unit basis.

**Ash Meadows National Wildlife Refuge, Nevada—Cooperative Activities**

*Types of Uses Anticipated to Occur*

- Access to the site for tribal uses compatible with conservation/preservation objectives of the refuge
- Tribe to contribute to resource protection activities in the refuge.

*Scale of Development or Activity*

- No permanent development.
- Tribal uses assumed to be consistent with management objectives.

*Limiting Environmental Factors*

- Presence of endangered species and other sensitive resources will condition tribal activities.

*Seasonal or Other Limitations, Potential Conflicts*

- No consumptive uses anticipated. Range of activities anticipated to be within permissible activities for the refuge.



*Nature of Agreements*

- Cooperative agreement between US Fish and Wildlife Service and the Tribe for cooperative activities within the refuge.

*Subsequent or Future Environmental Analysis Requirements*

- Agreement assumed to describe Tribe's role in existing approved management activities; no additional environmental review anticipated.

*Other Considerations*

- None identified.

**Other Agreements and Special Arrangements**

Actions in legislation do not require tribal actions, or involve tribal development or activities. Environmental consequences of Park actions will be considered in the LEIS.



**APPENDIX D**

**UNITED STATES DEPARTMENT OF THE INTERIOR  
BUREAU OF LAND MANAGEMENT  
NATIONAL PARK SERVICE  
FINAL  
SCOPING SUMMARY DOCUMENT  
FOR THE  
PROPOSED TIMBISHA SHOSHONE TRIBAL HOMELAND  
DRAFT REPORT**







**UNITED STATES DEPARTMENT OF THE INTERIOR**  
**BUREAU OF LAND MANAGEMENT**  
**NATIONAL PARK SERVICE**

**Final**

**SCOPING SUMMARY DOCUMENT**

**FOR THE**

**PROPOSED TIMBISHA SHOSHONE**

**TRIBAL HOMELAND**

**DRAFT REPORT**

**September 1999**





# United States Department of the Interior

## NATIONAL PARK SERVICE

Pacific West Region  
600 Harrison Street, Suite 600  
San Francisco, California 94107-1372



IN REPLY REFER TO:  
A5615 (PWRO-RD)

September 20, 1999

Dear Interested Citizen:

We are happy to forward to you the enclosed *Scoping Summary Document* prepared to analyze the over 500 public comments received on *The Timbisha Shoshone Tribal Homeland: A Draft Secretarial Report to Congress to Establish a Permanent Tribal Land Base and Related Cooperative Activities*. Released for public comment in May 1999, the draft secretarial report was prepared pursuant to Section 705(b) of the California Desert Protection Act of 1994 (Act) which directs the Secretary of the Interior, in consultation with the Timbisha Shoshone Tribe (Tribe), to conduct a study to identify lands suitable for a reservation for the Tribe both inside and outside Death Valley National Park. The draft secretarial report identified those areas determined suitable for the purposes outlined in the Act.

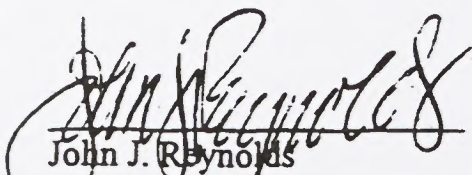
Comments were received by the National Park Service and the Bureau of Land Management between April 19 and July 15, 1999. The rich array of comments ranged across a wide spectrum of regulatory, socio-economic and environmental issues. A summary document was prepared to capture substantive issues for further consideration. The scoping comments are organized in two sections. Comments regarding regulatory-based issues and processes, such as administrative policies and agency procedures, are banded together. Comments regarding environmental and resource management issues, such as data collection significance criteria, are likewise grouped.

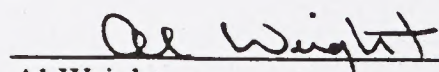
A legislative environmental impact statement (LEIS) is now being prepared as provided under section 1506 of the Council on Environmental Quality (CEQ) regulations as the detailed statement required by law to be included in a recommendation on a legislative proposal to the United States Congress. Release of the draft LEIS is anticipated during the winter of 1999-2000.


If you do not have a copy of *The Timbisha Shoshone Tribal Homeland: A Draft Secretarial Report to Congress to Establish a Permanent Tribal Land Base and Related Cooperative Activities* (Spring 1999) or would like another copy, please contact Bettie Blake at (760) 786-3243. The document may also be found on the World Wide Web at [http://www.nps.gov/deva/FrameSet\\_timbisha.html](http://www.nps.gov/deva/FrameSet_timbisha.html).

Please send all written comments or inquiries regarding this project to the Superintendent, Death Valley National Park, Post Office Box 579, Death Valley, California, 92328, (760) 786-3243.

Sincerely,

  
John J. Reynolds  
Regional Director  
Pacific West Region  
National Park Service

  
Al Wright  
Acting State Director  
California  
Bureau of Land Management

  
Bob Abbey  
State Director  
Nevada  
Bureau of Land Management



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## **Purpose**

The purpose of this document is to summarize the results of the public scoping process conducted by the Department of the Interior (DOI), the Bureau of Land Management (BLM) and the National Park Service (NPS), regarding the proposed Timbisha Shoshone Tribal Homeland Draft Study Report.

The purpose of the scoping process is to assist the agencies gather public input that would shape the analysis considered in the NEPA compliance document. This scoping summary document is prepared to record the results of the scoping process.

This summary document will not list the number of commentors who support or do not support the proposed project. It is not intended to include every sentiment expressed in the hundreds of letters received by the agencies.

The summary language used in this document is directly excerpted from public comment letters. This summary document is only intended to capture and the issues that are directly related to resource management & the regulatory process that can be addressed by the agencies in the NEPA process.

## **Background and History**

The Department of the Interior (DOI), National Park Service (NPS) and Bureau of Land Management (BLM), held a series of public meetings to gather comments on a Draft Report entitled The Timbisha Shoshone Tribal Homeland-A draft Secretarial Report to Congress to Establish a Permanent Tribal Land Base and Related Cooperative Activities .

The report was drafted in accordance with the 1994 California Desert Protection Act, Section 705, P.L.103-433. The Secretary of the Interior was directed (in section 705(b) of the act) to conduct a study to identify lands suitable for a reservation for the Timbisha Shoshone Tribe which has no land base at the present but lives in its ancestral homeland within Death Valley National Park.

The Draft Report describes a comprehensive integrated plan to create a unique partnership between the Timbisha Tribe, Death Valley National Park, and the Bureau of Land Management by establishing a reservation for the Tribe and creating cooperative management opportunities within the Tribe's ancestral homelands in the Mojave Desert.

As required by the National Environmental Policy Act (NEPA), DOI have initiated the public scoping process by publishing a notice in the Federal Register on April 19, 1999 informing the public of the availability of the draft Report.

The draft proposal was presented before all county commissioners/supervisors in the affected counties (CA-Inyo, NV-Nye & Esmeralda).



In order to identify issues and concerns to be addressed in the environmental document, five public meetings were held on:

Monday May 24th 1999 in Pasadena, California (3 attendees);  
Tuesday May 25th 1999 in Ridgecrest, (3 attendees);  
Wednesday May 26th 1999 in Lone Pine, (29 attendees);  
Thursday May 27th 1999 in Goldfield, Nevada (12 attendees);  
Friday May 28th 1999 in Pahrump, Nevada (17 attendees);

At the request of the public, a 30-day extension of the scoping comment period was granted from June 15, 1999 to July 15, 1999. In addition, a 6th public scoping meeting was held in Ridgecrest on Monday, July 12, 1999. Fifteen people attended.

A total of 79 citizens attended the six public meetings.

Additional informational meetings were held by request, that includes:

-April 27th, 1999, in Las Vegas (at the request of the Nevada Congressional Staff)

-May 24th, 1999, in Beatty, Nevada (requested by Nye County Commissioners and Beatty resident-Jeff Taguchi)

-June 14, 1999, in Goldfield, Nevada (requested by the High Desert Resource Conservation District)

Letters were sent to tribes notifying them of the draft proposal. Also, tribes were invited to a meeting in Dyer, Nevada on June 5th, 1999 to answer questions and hear concerns.

During the scoping comment period (April 19, 1999 to July 15, 1999) written & electronically-mailed comments were accepted by NPS & BLM.

A web site was established to place the draft Report, questions & answers, fact sheets and any other information related to the project.

The scoping period generated a rich array of comments that ranged across a wide spectrum of regulatory, socio-economic and environmental issues. The concerns, comments and issues brought forward to BLM & NPS were presented as a question, a request or a statement that expresses an opinion or a combination of some or all of the above.

## **Document Organization**

The scoping comments are organized in two sections:

-Part A addresses comments regarding regulatory-based issues and processes i.e. administrative policies, agency procedures and NEPA process.



-Part B addresses public comments regarding environmental and resource management issues i.e. resource-based elements, data collection, significance criteria, environmental standards etc..

## **A. Regulatory Process Issues**

### **1. Level of environmental disclosure and documentation**

.....a full Environmental Impact Study must be completed by both the NPS and BLM.....

....the significance of this proposal warrants a full Environmental Impact Statement (EIS) as defined by NEPA.....

.....necessity to the need for absolute assurance that the NEPA process will be honored for all issues raised.....

.....request copies of a Bureau of Reclamation report entitled "WATER SUPPLY AND WATER DEVELOPMENT FOR THE PROPOSED TIMBISHA SHOSHONE TRUST LANDS"- dated June 1996.....

.....all future documents should, in a prominent location within the document, clearly define the process by which input can be submitted and considered by the appropriate agency.....

....a full environmental impact study is carried out to determine what impacts may arise from residential and commercial development on Centennial Flat.....

....make sure that (NPS & BLM) are placing before Congress a workable, fair, and carefully documented plan of action that does justice to all members of the Timbisha Tribe, without compromising the inalienable rights of the American people. Careful environmental studies must be carried out, and proper mechanisms for accountability must be defined, before this complex report is submitted to the vote of Congress.....

....in no case should land be transferred without appropriate mechanisms for accountability and full environmental impact studies....

### **2. Public involvement and notification**

.....failure to properly notify interested parties, and the artificially short comment period even with the 30 day extension.....

.....why was not this Draft (report) submitted to the public, DEVA Advisory Commission, the BLM Advisory Commission, and Inyo County until less than one week was left to comment on the draft? .....

.....This draft is supposedly based on a Bureau of Reclamation Report written in 1996 and a previous proposal "Study to identify lands suitable for a reservation for the Timbisha Shoshone Tribe" marked Confidential that had different lands identified in 1995 behind closed doors without public involvement....



### 3. The draft report (proposal) and the NEPA process

.....Is a supplemental draft to the Death Valley Park portion going to be issued, which will delay the release of the Final EIS?.....

.....will this matter be incorporated into the BLM (NEMO) portion prior to the release of the Draft EIS.....

.....the Nevada portion will require an amendment to an existing RMP. What assurance do we have that all interested parties will be notified.....

.....Warm Sulfur Springs area is directly tied to our (tribal) family alone and therefore needs to be excluded as part of the subject proposal.....

.....nowhere in the Draft Timbisha Shoshone Tribal Homeland Secretarial Report is there an explanation of its current National Environmental Policy Act (NEPA) status.....

.....the report includes no point of contact, phone number, or other information to inform reviewers of the appropriate procedure by which comments can be submitted for consideration.....

.....it is not even clear which Department of Interior (DOI) agency has the lead....

.....the proposed land parcels are widely scattered to the point of being impractical.....

.....the report is too vague, poorly written, biased, and offers very little in absolute or certain benefits for the Tribe....

.....each alternative or option is subject to a seemingly endless array of obscure caveats that lead back to the obvious conclusion that the DOI is holding all the "aces" so to speak and will ultimately do as they please.....

....It is obvious that the DOI has no intention of honestly and fairly evaluating additional alternatives to allow the Timbisha Shoshone people to have their rightful homeland within their true ancestral territory in Death Valley National Park.....

.....the Department of Interior (DOI) has shrewdly manipulated this process to the Tribe's disadvantage by putting them in the position of having to seek possession of federally administered land outside the Park boundaries that is of high value to the public but only marginally suitable to sustain the needs of the Tribe. This scenario has unfairly forced the Tribe to be pitted against many local interests, individuals, and property owners with an unavoidable lose/lose outcome. The DOI has cleverly worded the Secretarial Report to maximize discontent and conflict between the Tribe and other interested parties.....

.....DOI has a moral obligation to at least consider additional alternatives for a significantly larger Tribal Homeland within the boundaries of the Park. The alternatives for Tribal homelands should include areas that are important to the Tribe even if the areas are included in designated wilderness areas.....



.....the Tribe should not be forced to forgo the option of gaming within the boundaries of the Park because it limits options that might be necessary for the economic viability of their future generations. There is a possibility that future generations may need to rely on gaming to provide financial security, funds for higher education, or capital for business ventures. The subsequent environmental document should analyze this option as one of the alternatives.....

.....by making a decision this quickly without adequate knowledge, we could jeopardize the intent of the Desert Bill that originally created this latest Park.....

.....why was Centennial Flats not in the original proposal by the Bureau of Reclamation. Why did it suddenly appear.....

.....any lands granted to the Timbisha Shoshone should be restricted to the areas within the Death Valley National Park and any lands outside of the park should be removed from consideration under this proposal....

....the report is too restrictive and places excessive limits on the Tribe's economic opportunities at Furnace Creek and other locations within the Park boundary. Offering visitors a "cross-culture experience", leading hikes, modest lodging accommodations, and so-called "eco-tourism activities will not generate a substantial monetary income.....

....managing the Furnace Creek Tourist facilities should be done by the Timbisha or at least they should get a share of the profits from AmFac in that endeavor.....

.....Panamint Springs should be looked at for possible purchase as I believe that this area was used almost exclusively by the Timbisha.....

.....question the logistics of the fragmentation of this Proposal (noncontiguous reservation).....

#### 4. Legal & law enforcement issues.

....the proposal must spell out clearly the mechanism for resolving grievances in court, should the Timbisha fail to perform appropriately in managing the lands entrusted to them. Which court would hear such grievances? Would the Tribe agree to arbitration, and if so, would arbitration be binding? What power would the presiding court have in settling disputes and grievances?.....

.....who will be responsible for law enforcement?....

.....does this mean that all grievances will be upheld in tribal court or in municipal/federal courts? Who will be the arbitrator?.....

#### 5. Future development on the proposed reservation

.....define what type of living accommodations and define tourism accommodations....

.....are there enough financial, water and human resources and have they been properly identified for the expansion of services as called for in the proposal.....

#### 6. Cooperative management and agreements



.....identify how this will work in the Western Lands where co-management is asked for and a nomadic way of life was lived by different tribes, namely the Timbisha, Owens Valley Paiute, Southern Paiute, Tabatulabal, Kawaiisu and Chemehuevi.....

## 7. Other conflicting federal programs

.....traditional uses of this area should be pursued only insofar as they are consistent with present management policies.....

## **B. Environmental & Resource Management Issues**

### 1. Water Resources

.....request studies be done to determine if the water source for Coso Cold Springs is related to Black Springs water source. What possible impact drilling and pumping in Centennial Flat could cause to Darwin's water supply?.....

.....before any land transfer takes place we request assurance that our water will not be impacted and clearly stated accountability for that assurance.....

.....why does this latest report not contain water analysis of Centennial Flats.....

.....test drillings should be carried out and the results fully disclosed to the public, to demonstrate that there is an adequate water supply for the proposed reservation over and above existing water rights.....

.....conduct studies to determine whether the water source at Centennial Flat is related to the water source for Darwin, or to any other water sources where rights are currently held.....

.....can water usage limits be placed on Indian Trust Lands?....

.....very careful studies must be done to determine what potential impacts development might have on the water table. Commercial exporting of water should be prohibited under any land transfer agreement .....

### 2. Socio-economic Resources

....subsequent environmental documents should include an analysis of the Tribe's economic viability and employment opportunities under less restrictive guidelines.....

.....studies of the economic and social consequences of development at Centennial Flat, including the need for expanded public services and the consequent impact on the Inyo County tax base....

....will there be an effect to the County Property and/or State Tax Base?....

.....how will it impact existing property and water rights as granted under Congress, FLPMA, the Desert Protection Act and other documents already in place and ratified by Supreme Court Decisions and valid property rights such as the township of Darwin and their water rights, property right and water rights of Marilyn Moyer, the Gervais, et al in Saline Valley, and cattle



grazing and water rights of Roy Hunter on Hunter Mountain?.....

.....why does this latest report ignore the Supreme Court water rights of others, i.e. the State of California, the State of Nevada, Public Water Reserves and Water Rights particularly belonging to US Borax, Darwin, Gervais and Roy Hunter's family water rights dating back to 1875 and upheld in 1967 under No. 20,093? Why are not complete isotope and water analysis being completed under the framework of NEPA and by the USGS?.....

.....why does not this proposal take into account transportation, food, power, water sanitation, housing, medical and emergency services in areas where they have historically lived.....

....NPS, BLM, Interior Department, and Congress have the responsibility to make sure that the Timbisha Nation has the resources to handle this project either financially or ecologically.....

.....the financial condition of the Timbisha Tribe- Are the taxpayers going to be asked to come up with development money?.....

.....conduct studies of potential impacts of road building on Centennial Flat and increased traffic on Highway 190, with an increased allocation of law enforcement to the 190 corridor.....

.....conduct studies of the health, safety, and legal impacts of establishing a reservation with sovereign nation status in close proximity to the Darwin townsite, NAWS, and the recently established BLM Wilderness Area on Upper Centennial Flat, among other affected entities.....

### 3. Access to public lands (NPS & BLM) for recreation & other uses

.....keep access to public lands resources available to the public without new restrictions (Saline Valley & other areas within and outside Death Valley NP) .....

.....how will it affect the astronomy club that was recently granted by BLM (within the last 90 days) the privilege of using White Swan Mine for education purposes.....

.....the land inside the National Park may be considered more suitable for such grants in the dealings between congress and a group of people, but I feel that the public lands outside of the park are a different matter.....

### 4. Cultural & traditional resource management

.....draft document should include provision for Native American control of the main native village ruins site from the mouth of Hunter Canyon to the County Road or private land boundaries....

...(west of Saline Valley road) is a very significant historical site covered with artifacts over a 2 square-mile area. tourists are daily tramping over a burial ground and ancient living sites. This traffic needs to be strictly controlled, by Native people.....

....several other nomadic tribes roamed the subject area. Why are they not ALL considered?....



....why does this document not reflect the concern by other native Americans, historians and myself for the protection of the petroglyphs, geoscripts and other archaeological concerns that need protection?.....

.....how it will affect the Paiute and other Native Americans that use Hunter Mountain, Waucoba and other shared areas for pinion gathering.....

#### 5. Wildhorse management

.....Assure that the wildhorse herds (near Death Valley Junction) will not be negatively affected by the proposal.....

#### 6. Wildlife Resources

.....will Death Valley will be the first national park that will allow by means of subsistence hunting to hunt the endangered big horn sheep?.....

.....the Timbisha should be given no special resource management authority in the Ash Meadows area, which is a Wildlife Refuge. Their traditional uses of this area should be pursued only insofar as they are consistent with present management policies. decision here set an incredible precedent since it involves Indian Lands and management participation over existing Park Service Lands.....

#### 7. Visual resources

.....how will the proposed edifices that have yet to be defined in the Centennial area affect the night skies of the public at large.....

#### 8. Mineral resources

....are our mineral claims & or mill site claims, are or have been, included in any proposal for said trust lands.....

#### 9. Vegetation resources

....BLM has not had the funding nor manpower to adequately manage the Warm Sulfur Springs area as made evident by the overgrown vegetation choking out the spring and dead mesquites laying all over the area.....

#### 10. Other comments

.....This proposal also needs to prioritize who has the lead jurisdiction...

...How will these decisions be made? Will they be voted on by general membership of Tribal Council or General Council or will it be a decision by all Native Americans in the immediate area?

...will membership roles be open for inspection? Will these decisions be a part of inspection under the Department of Interior along with all financial information?



...will people that are doubly enrolled in other tribes be allowed to vote on these issues? Will non natives be able to vote or voice their concerns regarding Reservation/Park Policies?.....

...NPS wants to seek legislation to permit the Timbisha to gather certain plant material, it could easily accommodate that as an existing Federal Law (16 U.S.C. 460uu-47) already is a precedent for that.....

....I believe it was a time for the Native Americans to come together and share their ways with others. Traditionally but not exclusively.....



**APPENDIX E**

**GROUDWATER RESOURCE ISSUES OF  
DEATH VALLEY NATIONAL PARK  
RELATED TO TIMBISHA SHOSHONE  
PROPOSED RESERVATION**







**GROUND WATER RESOURCE ISSUES  
OF  
DEATH VALLEY NATIONAL PARK  
RELATED TO  
TIMBISHA SHOSHONE  
PROPOSED RESERVATIONS**





**GROUND WATER RESOURCE ISSUES  
OF  
DEATH VALLEY NATIONAL PARK  
RELATED TO  
TIMBISHA SHOSHONE PROPOSED  
RESERVATIONS**

Edited by

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**Death Valley National Park  
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1998



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## FORWARD

The collection of papers in this volume describe the ground water and ground water-dependent resources of Death Valley National Park. The papers were prepared by subject matter experts but are intended for a non-technical audience. Subjects covered by the papers include: (1) the regional ground water system, (2) wetland riparian and aquatic resources of Death Valley National Park and their vulnerability to alterations in the ground water system, and (3) legal issues associated with the protection of Death Valley ground water and ground water-dependent resources.

The information in this volume is intended to assist managers and decision makers charged with identifying lands suitable for a reservation for the Timbisha Shoshone Tribe. Specifically, it is hoped that this information will assist in evaluating potential impacts of reservation proposals on the water resources of Death Valley National Park.

The paper by Bedinger provides a concise overview of the hydrogeologic setting of the general area. The paper by Harrill summarizes the current knowledge of the Death Valley Ground Water Flow System and the potential impact of water development at the proposed reservation sites on ground water dependent resources of the park. The paper by Threlhoff describes the aquatic, wetland and riparian resources of the park and their susceptibility to water diversion activities. The final paper by the National Park Service Water Resources Division discusses legal issues associated with the protection of park water rights.

## BACKGROUND

On October 31, 1994 the **California Desert Protection Act of 1994**, P.L. 103-433, was passed. Section 705 (b) (1) speaks to Native American Uses and Interests, and directs that "The Secretary, in conjunction with the Timbisha Shoshone Tribe and relevant Federal agencies, shall conduct a study, subject to the availability of appropriations, to identify lands suitable for a reservation for the Timbisha Shoshone Tribe that are located within the Tribe's aboriginal homeland area within and outside the boundaries of the Death Valley National Monument and the Death Valley National Park, as described in title III, of this act".

Subsequent to the act, a series of meetings between Timbisha Shoshone tribal counsel members and Federal agency representatives were held. In the fall of 1995 the tribe presented several proposals for reservation lands. At this time, four (4) sites are under consideration. These sites include Furnace Creek, within the park; one site in California, and two sites in Nevada.



Complicating the identification of a reservation site is the fact that **the water resources of Death Valley National Park are among the most threatened of any park in the United States.** This is because a very large aquifer system termed Death Valley Ground-Water Flow System "Flow System" is the source of major park water resources. This Flow System terminates within the park at Death Valley Playa. Because no large perennial streams or rivers exist, spring discharge and ground water pumping from the Flow System is the sole source of water for all parties within the area. The existing and anticipated pumping which pose a threat to park water resources is by private parties and several federal entities. The main uses include irrigation, public supply, mining, industrial and governmental, and domestic. Federal entities include the following. Department of Energy and Department of Defense. The Department of Energy pumps water for the Nevada Test Site and Yucca Mountain Project. The Department of Defense pumps water for Nellis Air Force Base activities. Sister Department of Interior Agencies that are subject to impacts are: Fish and Wildlife Service which manages Ash Meadows National Wildlife Refuge which is adjacent to Devils Hole, and Bureau of Land Management which manages large areas east of the park.

The objectives for water resources management at Death Valley National Park are to insure the preservation of historic, natural, ground and surface water resources for the protection of associated natural and cultural features – and to provide potable water supplies in support of visitor enjoyment and park administrative functions. Increasing development within the Flow System and data analyses that indicate a lowering trend of Devils Hole water level has prompted concern for the preservation of park water resources. To strengthen the park's stance in protection of water resources, a hydrologist was added to the staff in 1994.

Park water resources attributes at risk include: (1) biological resources, including the pupfish at Devils Hole which is a detached park unit. Devils Hole water level is protected by a U.S. Supreme Court decision, (2) park visitor enjoyment includes the vista and inspection of **Death Valley Playa, a unique geohydrologic feature that is the distinguishing characteristic of the park.** This water resources attribute contains the lowest point in the Western Hemisphere at 282 feet below sea level, identified by the white salt crust deposited by evaporating water, and (3) the following potable water supplies, see Figure 5 in James Harrill's report of this volume for map locations.



## Furnace Creek Discharge Area

Travertine and Texas Springs - These two names have been applied to a line of spring orifices. These sources were historically used on private property and water rights were acquired prior to park establishment. Ownership of property and specified water rights quantities as per an agreement with the National Park Service is now vested in Fred Harvey Inc. which operates resort facilities on two land parcels. A water collection, storage, and distribution system was jointly build by National Park Service and Fred Harvey Inc. in the late 1970's. The system provides potable and irrigation water for: (1) Fred Harvey Inc. facilities, (2) Death Valley National Park Visitor Center and Headquarters, and nearby campgrounds, and (3) for the present Timbisha Shoshone Village.

Nevares Spring - Located about 3 miles north of Travertine and Texas Springs. A portion of Nevares Spring flow is diverted for potable water supply and irrigation at the Cow Creek area. This area contains park housing, maintenance facilities, some offices, and storage. Also, State of California Transportation Department facilities, a grade school, and state employee housing are located here.

## Grapevine Discharge Area

Staininger Spring - Prior to park establishment, the major portion of this spring flow was developed by private parties as irrigation and potable water supplies for extensive and elaborate structures and landscaping. Now a portion of the park and known as Scottys Castle, the site is a visitor interpretative area of historical and architectural significance where guided tours are conducted.

Surprise Spring - Spring flow supports the Grapevine Ranger Station, maintenance facilities and housing area.

Mesquite Spring - Potable water supply for Mesquite Campground. Spring flow is believed to be derived from the Flow System.

In summary, there is a vast array of ground water-dependent resources in Death Valley National Park reliant on a single aquifer extending far beyond the park boundary and which is currently used as the sole water source of various entities. These uses now pose a threat to park water



resources. It is important in evaluating alternative reservation sites that we understand the associated risks of each site and the influences that ground water development might have on the water-dependent resources of the park. It is hoped that the information in this volume will contribute to that understanding.

William L. Werrell  
Editor



DEATH VALLEY:  
A HYDROGEOLOGIC ECOSYSTEM IN PERSPECTIVE

Prepared for:  
U.S. Department of Interior  
National Park Service

July, 1997

by

M.S. Doug Bedinger  
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## THE REGIONAL FLOW SYSTEM

"Death Valley ... is the ultimate discharge area of a regional ground water flow system."

The Death Valley Ground-Water Flow System, named for the playa and spring system in Death Valley National Park, is the ultimate discharge area of a regional ground water flow system in southern Nevada and southeastern California. The ground water at Death Valley National Park originates as precipitation that falls in the mountain areas of the 30 or so tributary basins. The ground-water conditions in this 15,800 square mile area and the potential impact of the four proposed Timbisha Shoshone reservation sites on water resources at Death Valley National Park and Ash Meadows National Wildlife Refuge are described in the report by J.R. Harrill in this volume.

Ground water is virtually the only source of water supply in the region. Ground water is naturally discharged at intermediate discharge areas in the Flow System in addition to the ultimate discharge at Death Valley. Such discharge areas are at Sarcobatus Flat where ground water is near the surface and withdrawn by phreatophytes. Discharge at Oasis Valley, Alkali Flat near Death Valley Junction, and Ash Meadows is by phreatophytes and at springs that discharge from the regional aquifer system.

## ONE FLOW SYSTEM; A LIMITED RESOURCE

"There is only a limited amount of water available...the effects of ground-water withdrawal are widespread."

The unique ecosystems at Ash Meadows and Death Valley as they exist today are entirely dependent upon the continuous ground-water flow at near the natural and historic rates. Today, the greatest changes to the system are occurring in response to ground-water withdrawal by pumping. Moreover, the rate of ground-water withdrawal is increasing and there are many potential users vying for rights to withdraw additional water from the system. Ground-water systems are dynamic, hydraulically responding immediately to changes in recharge and discharge. The magnitude of the change is greatest near an individual well or well field. With time, the impact spreads further and further from the impact point. The distance from the wells, the rate of withdrawal and duration of pumping, and the aquifer characteristics are controlling hydraulic factors in determining the time and degree of impact at a given point. There is only a limited amount of water available. Unlike many aquifers, recharge cannot be significantly increased by lowering the water level in the recharge areas because of the great depths to water that generally occur in the recharge areas of the Death Valley Flow System. Lowering of water levels near the pumping centers occurs rapidly and depletes the water available for subsistence of biota at wetlands, shallow water table areas, and at springs and spring-fed



streams. Lowering of water levels may also cause physical changes to previously saturated sediments. As dewatering occurs, a degree of sediment compaction may take place accompanied by changes in hydraulic characteristics of the compacted layers and may be accompanied by subsidence and earth cracks. With time, the effects of withdrawal become widespread, extending to other basins in the Flow System. With each increase in ground water withdrawn above Ash Meadows and Death Valley, the potential flow to these areas is depleted by an incremental amount and the ultimate flow that supports the ground-water ecosystems is reduced.

## **THE CLOCK IS TICKING**

**"Time response in the flow system is delayed ... historic withdrawals have diminished interbasin flow ..."**

The time response of the system is delayed. The time of travel of water from the recharge areas to the discharge areas at Ash Meadows and Death Valley is very long. The time response to ground-water depletions is much more rapid.

To understand the effects of withdrawal from the system, we need to know more about the properties of the system that relate to depletions of ground water and response time of the system. We do not know how long it takes for the diminishment of flow by withdrawal in upgradient basins to reach Ash Meadows or Death Valley. We do not know the magnitude of depletion of ground water that historic withdrawals will have on discharge at Ash Meadows and Death Valley. We do know that historic withdrawals have diminished ground-water storage and that they have diminished interbasin flow. The effects may have reached the discharge areas. Additional withdrawals from upgradient basins will cause further depletions. Adverse changes could be pending that would occur without further advance knowledge.

## **PERENNIAL YIELD: FACT OR FALLACY**

**"Each incremental increase in pumping from upgradient basins will cause an incremental decrease in flow to Ash Meadows and Death Valley"**

Early hydrogeologic studies of basins in Nevada attempted to determine a rate at which water could be withdrawn annually from each basin. The perennial yield of many basins was thought to be a value near the rate of discharge by evapotranspiration. In making estimates of perennial yield, local spring flow, ground-water inflow, and ground-water outflow from the basin were considered. These perennial yields were largely the basis used for allocating water rights within each basin. The commonly accepted wisdom was that the perennial yield is that rate at which water can be withdrawn at a sustained rate without long-term depletions of ground-water storage from the basin or adjacent basins.



The fact is that there is a finite and limited yield for the Death Valley Ground-Water Flow System. The perennial yield is not an independent amount for each basin. Water withdrawn from an interconnected basin can not be supplied solely from salvage of local evapotranspiration or diminishment of local spring flow. The basins are interconnected and effects of withdrawals extend beyond basin boundaries. Each incremental increase in pumping from upgradient basins will cause an incremental decrease in flow to Ash Meadows and Death Valley. Moreover, water allocations in some basins are greater than the so-called perennial yield. J.R. Harrill refers to several basins in Nevada that are over appropriated; one being the Amargosa Desert, where Ash Meadows National Wildlife Refuge and Devils Hole are located.

## **THE GROUND-WATER DEPENDENT ECOSYSTEM**

**"The ground-water related ecosystem is dependent upon...the regional ground-water system."**

Ground-water discharge from the Flow System at Ash Meadows and Death Valley supports assemblages of plants and animals that exist nowhere else. The discharge at Ash Meadows is by evapotranspiration from a shallow water table and from several large springs that discharge from the carbonate aquifer. The ground-water discharge at Ash Meadows supports some 26 endemic species of rare plants and animals, organisms that are found no other place in the world. Best known is the species of pupfish native only to Devils Hole. Other species of pupfish live in the several springs of Ash Meadows. Eleven of the endemic animals and plants at Ash Meadows are listed as endangered or threatened. The springs at Death Valley support a similar set of animal and plant species that are dependent upon the springs for their survival. The species of plants and animals in the Death Valley and Ash Meadows regions dependent upon the environments in the ground-water discharge areas are discussed in the report in this volume prepared by Doug Threlhoff, National Park Service. Primary features of interest at Death Valley include the saline and fresh water springs, their associated biota, the salt pan and saline playa that are all dependent upon discharge from the ground water Flow System.

The ground-water related ecosystem is dependent upon flow in the regional ground-water system. Competing with the natural species of plants and animals for the ground water is man who can withdraw water from the aquifer by wells. Though the ground-water resource of both man and nature can be diminished by overdraft of ground water, the natural ecosystem is the first to be seriously affected by depletions.



## ECOSYSTEMS AT RISK

"Has ground-water withdrawal already seriously depleted flow in the system... ?"

It has been pointed out above and in the report by J.R. Harrill in this volume that withdrawal of ground water, even at rates less than the so-called perennial yield, reduces flow in the system and the discharge to Ash Meadows and Death Valley. It is significant that appropriated rights in the Nevada portion of the Flow System exceed the system inflow by probably 25 to 50 percent. It is observed that the over appropriation in the Flow System is largely due to water rights in three of the 30 basins. The overriding causes for concern are not only that water rights appropriations are granted in excess of the so-called perennial yield rationale, but also that water rights are appropriated without recognition of the fact that impacts of withdrawals are transmitted to adjacent basins.

Four proposed sites in the Death Valley Ground Water Flow System are proposed for being studied for suitability as a Timbisha Shoshone Tribe reservation. An overview of the Flow System hydrology and a hydrologic characterization of the four proposed sites with a discussion of water related issues are given in the report, in this volume, by J.R. Harrill. Water rights implications and impacts of future ground water withdrawals related to the establishment of reservations at the four sites must be carefully considered. Two sites are in Nevada. The site at Death Valley Junction, though in California, is in the Amargosa desert, which is a basin largely in Nevada that is currently over appropriated. The site at Furnace Creek is at the center of the ultimate discharge area of the Flow System, in the area that will stand to be the most seriously impacted by withdrawals in the entire ground-water Flow System. Here, it is not only the ground-water ecosystem at risk but the water supply for the U.S. Fish & Wildlife Refuge, Death Valley National Park, and the proposed tribal lands at risk.

The question is not "Will ground water withdrawal impact ecosystems at Ash Meadows and Death Valley?", but rather, "Has ground-water withdrawal already seriously depleted flow in the system and when will the impact be known at Ash Meadows and Death Valley?"



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Beginning in 1980 he lead a U.S. Geological Survey program, in cooperation with eight western States, to evaluate the suitability of the region for potential high-level radioactive waste disposal sites. This program involved study of the geology and hydrology of the arid western United States including the Death Valley Ground-Water Flow System.

As a hydrogeologist with the University of Nevada Las Vegas and as a private consultant, he has continued to work on hydrogeologic problems in the Death Valley Ground-Water Flow System in Nevada and California.



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THE POTENTIAL IMPACT OF WATER DEVELOPMENT  
AT PROPOSED TIMBISHA SHOSHONE RESERVATION SITES  
ON GROUND-WATER DEPENDENT RESOURCES OF  
DEATH VALLEY NATIONAL PARK  
AND  
ASH MEADOWS NATIONAL WILDLIFE REFUGE

Prepared for:  
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## ATTACHMENTS

A. BOUNDARIES USED IN THIS REPORT

B. MEMOS FROM U.S. BUREAU OF LAND MANAGEMENT THAT IDENTIFY PUBLIC LANDS AT DEATH VALLEY, CA, SCOTTYS JUNCTION, NV, AND LIDA, NV THAT ARE POTENTIALLY SUITABLE FOR RESERVATION LANDS AS DETERMINED BY THE BUREAU OF LAND MANAGEMENT IN THE TIMBISHA SHOSHONE LAND RESERVATION STUDY.

C. RESUME AND PERSONAL INFORMATION FOR JAMES R. HARRILL

D. PUBLISHED REPORTS BY JAMES R. HARRILL



THE POTENTIAL IMPACT OF WATER DEVELOPMENT  
AT PROPOSED TIMBISHA SHOSHONE RESERVATION SITES  
ON GROUND-WATER DEPENDENT RESOURCES OF  
DEATH VALLEY NATIONAL PARK  
AND  
ASH MEADOWS NATIONAL WILDLIFE REFUGE

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EXECUTIVE SUMMARY AND CONCLUSIONS

Within this general desert area, surface water resources are nil. Each water use must be derived from a single, finite ground-water system. In its natural status, the system provides water for springs within both Death Valley National Park and Ash Meadows National Wildlife Refuge. Also, the system terminates at Death Valley Playa. The ground-water system is dynamic and responds to water withdrawal (wells) by reducing natural discharge up- and down-gradient from the wells. This report discusses the ground-water system, natural resources dependent upon the system, present impacts on the system, and any potential impacts associated with the proposed Timbisha Shoshone reservation sites. In a broad prospective, any new withdrawals will impact natural ground-water resources. Each new incremental increase in withdrawal will cause an incremental decrease in natural ground-water discharge.

The four sites discussed in this report are areas of interest to the Timbisha Shoshone Tribe as potential reservation sites. The sites are the Lida Summit Site, Scottys Junction Site, Death Valley Junction Site, and the Furnace Creek Site.

All four sites are within the Death Valley ground-water Flow System which underlies about 15,800 mi<sup>2</sup> in southern Nevada and southeastern California. Ground water regimes are dynamic, adapting to changes by hydraulic adjustments. Because Death Valley Playa is the terminus of the Flow System, development at any of the sites (or at any location within the system) will have at least some effect on the Park, the Refuge, or both.

The Lida Summit Site contains topographic divides and occupies parts of Fish Lake Valley, Clayton Valley, Lida Valley, and Death Valley. The site is representative of higher-altitude areas formerly occupied by the Timbisha Shoshone Tribe. The Lida Summit Site differs from the other sites in that it does not receive subsurface inflow from any upgradient areas. The water supply is derived entirely from precipitation that falls within the area of the site. Pumping will reduce subsurface outflow to down-gradient parts of one or all of the valleys, the total impact will be proportional to the pumping.

The Scottys Junction Site is in Sarcobatus Flat which is upgradient from the Grapevine Discharge Area. It is situated on the main access route to the northern part of Death Valley National Park. The site is adjacent to and partly contains an



area of natural ground-water discharge. Pumping from the site can capture some or all of this discharge but will also cause a reduction in subsurface outflow to Death Valley. Water quality is suitable for most uses but high fluoride concentrations may be a problem for some uses.

The Death Valley Junction Site is in the Amargosa Desert which is upgradient from the Furnace Creek Discharge Area. It is situated on the main route of access to Death Valley National Park. Allocations to pump ground water from the Nevada part of the basin exceed the estimated yield of the basin and pumping rates have been increasing steadily since 1989. The existing pumping and appropriations yet to be exercised will decrease subsurface inflow to Death Valley and natural ground-water discharge at Ash Meadows. Also, the pool level at Devils Hole probably will be lowered. Any additional pumping in the vicinity of Death Valley Junction will increase problems associated with overdraft in the Amargosa Desert. Pumping at low rates will have small effects, however, they will be additive to effects of existing pumping in the Amargosa Desert.

The Furnace Creek Site is entirely within Death Valley National Park. It contains the current residence for some members of the Timbisha Shoshone Tribe. Environmental constraints for areas within the Park, impacts on spring discharge, and possible water-quality problems, limit options for a water supply.



## INTRODUCTION

### Background

The California Desert Protection Act of 1994 that created Death Valley National Park (P.L. 103-433, passed October 31, 1994), stated, "The Secretary, in consultation with the Timbisha Shoshone Tribe and relevant Federal Agencies, shall conduct a study ... to identify lands suitable for a reservation..." In accordance with this provision, meetings attended by Federal and State representatives and interested parties have been held with tribal members and their consultants. In October 1995 the tribe presented a proposal of several sites. In October, 1996 the National Park Service and the Fish and Wildlife Service contracted with Pal Consultants Inc. to prepare this summary hydrology report for presentation to the Secretary of Interior regarding four of the proposed sites.

The four proposed reservation sites are within the Death Valley ground-water flow system, "Flow System", present in the southwestern portion of Nevada and extending into California (figure 1). The Flow System collects ground water recharge within Nevada, permits ground water migration in a general southwestern direction, and terminates at Death Valley Playa within Death Valley National Park. At places along this route, hydraulic conditions related to geology cause ground water to discharge at the surface thus creating springs. Within this desert area, surface water runoff or stream flow is meager and infrequent. Thus, except for a few small, perched, mountain springs, essentially all water-related natural resources are restricted to Flow System discharge points. Man-made developments reliant upon water supplies derived from wells, are dependent upon the same Flow System. This condition, and concern for the protection of water-related natural resources under the protection of Death Valley National Park and Ash Meadows National Wildlife Refuge prompts the preparation of this paper. This report presents an overview of the Flow System hydrology, a hydrologic characterization, and a discussion of hydrologic and ground-water issues pertaining to each site. Emphasis is placed on the potential impacts to existing Federal reservations of both Agencies resultant of water development at those four sites.

In accordance with the National Park Service enabling legislation, areas are managed "to conserve the scenery and the natural and historical objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations." Death Valley National Park and Devils Hole are reasons for National Park Service involvement with the designation of a reservation for the Timbisha Shoshone Tribe. The Fish and Wildlife Service has a mission to conserve, protect and enhance



fish and wildlife and their habitats for the continuing benefit of the American people. They manage the Ash Meadows National Wildlife Refuge in the Amargosa Desert and are concerned for the protection and enhancement of threatened and endangered species throughout the area covered by this study.

### **The Proposed Sites**

The four proposed sites are: (1) Lida Summit, (2) Scottys Junction, Death Valley Junction, and (4) Furnace Creek (figure 1). Based on information provided by the tribal proposal, descriptions of site boundaries used for purposes of this report are given in Attachment A.

The four sites include a variety of conditions that range from extremely hot and arid desert conditions on Death Valley Playa to more temperate conditions in mountains on the border of the Flow System. Selected characteristics of the four sites are summarized in table 1.

### **Purpose of this report**

This report presents an overview of the Flow System and a hydrologic characterization of the four proposed sites with a discussion of water-related issues pertaining to each site. The primary purpose is to develop an understanding that; 1) Flow System discharge is essential to Death Valley National Park and the Ash Meadows National Wildlife Refuge; and 2) that withdrawals from this interconnected ground water source have widespread responses that transgress state lines, and other political and Government Agencies boundaries.

### **Acknowledgement**

A draft manuscript of this report was reviewed by M.S. Bedinger, Consulting Hydrogeologist, Carlsborg, Washington at the request of the National Park Service. Pal acknowledges that substantial contributions and improvements resulted from Bedinger's comments.



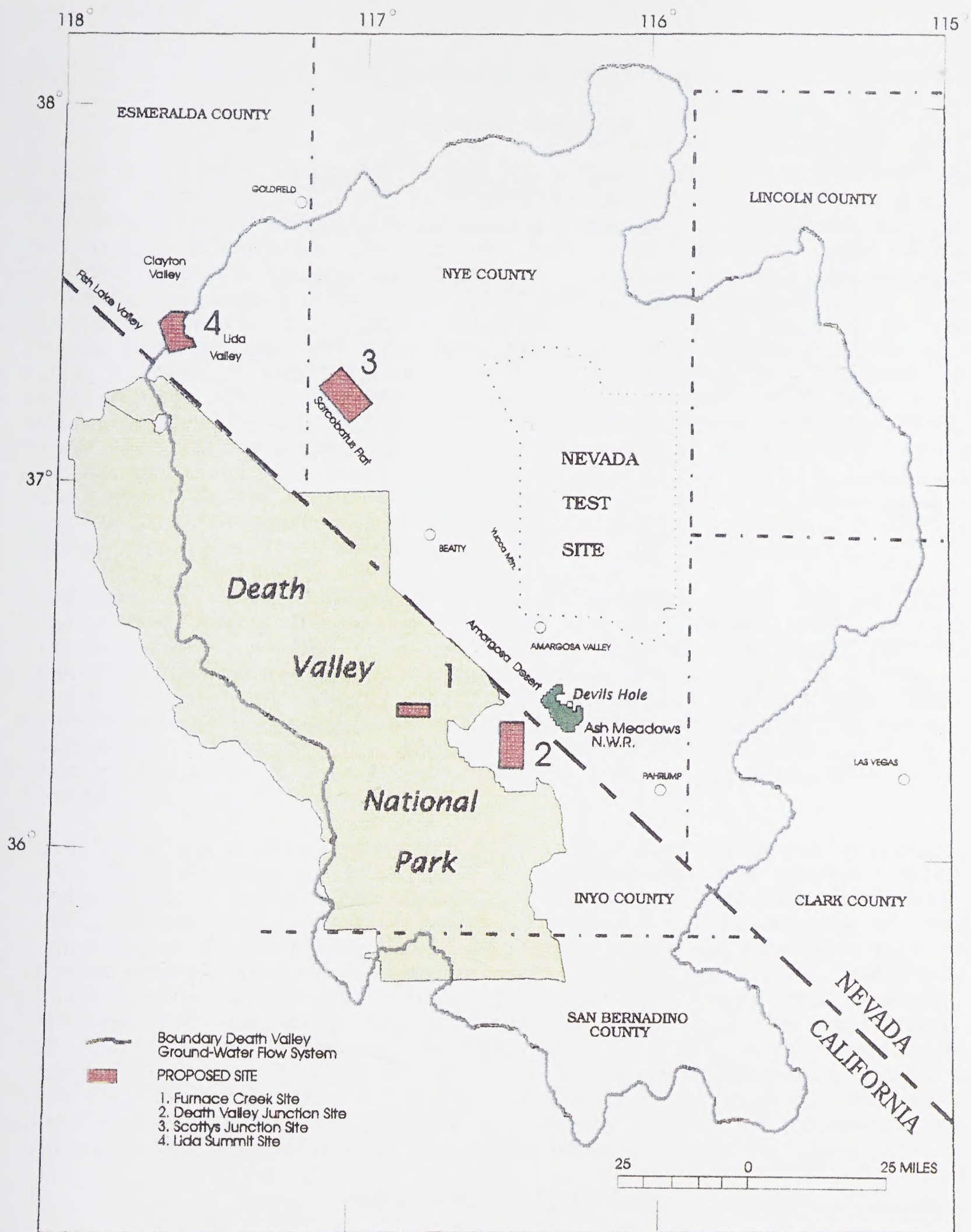


Figure 1. Location of Death Valley National Park, the four proposed sites, the Flow System, selected geographic features, and political boundaries.



Table 1. -- Selected Characteristics of the four Sites

	Furnace Creek Site	Death Valley Junction Site	Scotty's Castle Junction Site	Lida Summit Site
Key feature	Timbisha Village near Furnace Creek Ranch	Death Valley Junction	Scottys Junction	Lida Summit
Importance	Present residence of Timbisha Shoshone Tribe. Adjacent to private property (Fred Harvey). In proximity to Park HQ, near Park housing and State of CA school and highway maintenance facilities.	Situated near southern entrance to Death Valley National Park. In proximity to Death Valley Junction Motel and Opera House	Situated near northern entrance to Death Valley National Park Includes Scottys Junction (intersection of US 95 NV 73)	Representative of higher altitude areas formerly inhabited by Timbisha Shoshone Tribe Small community of Lida is near east boundary
Located in	Death Valley	Amargosa Desert	Sarcobatus Flat	Lida Valley, Fish Lake Valley, Clayton Valley, and Death Valley
Area (mi <sup>2</sup> )	20	18	40	64
Elevation (feet)				
Maximum	1,520	2,380	5,025	9,285
Minimum	-270	2,005	3,945	5,560
Selected point	-200 at Timbisha Village	2,040 at Death Valley Junction	4,065 at Scottys Junction	7,405 at Lida Summit
Vegetation	Desert shrub and bare soil	Desert shrub and bare soil	Desert shrub and bare soil	Pinion-juniper
Physio-graphic setting	Timbisha Village is on Furnace Cr. alluvial fan. Site extends from saltpan on floor of Death Valley east to lower parts of Furnace Cr. Wash	On valley floor of Amargosa Desert. Part of site contains floodplain of Amargosa River.	Mostly on valley floor of Sarcobatus Flat. Includes some volcanic hills along southwest border and part of a playa in the southern corner	Mountainous area, includes Magruder Mtn. and the Palmetto Mtns.



## GROUND-WATER FLOW SYSTEM

### Regional Setting

The four sites are all situated within the Flow System which underlies about 15,800 mi<sup>2</sup> and includes about 30 basins in southern Nevada and southeastern California. Each basin typically contains a structural depression that is partly filled by material eroded from adjacent mountains. The basins are separated by intervening mountain ranges that occupy about 25% of the area. Altitude ranges from below sea level in Death Valley to above 10,000 feet at several mountain peaks in the northern parts of the Flow System. The climate is arid to semiarid. Annual high temperatures in Death Valley generally exceed 125°F and in the other valleys generally exceed 100°F, including Amargosa Valley where Ash Meadows National Wildlife Refuge is located. Average annual rainfall in Death Valley is about 1.9 inches and in the other valleys is about 4 to 5 inches. As altitude increases the temperature is cooler and rainfall is higher. Above 7,000 feet annual precipitation may average between 12 to 25 inches.

Drainage is generally from mountains to adjacent basins. Some basins are topographically closed. Water accumulates in playas (intermittent lakes) following infrequent periods of high precipitation and runoff. Other basins are drained by rivers and streams that flow toward Death Valley when water is available. The Amargosa River is the most prominent of these intermittent drainages. During very wet years it flows all the way to the Death Valley Playa or saltpan where a shallow intermittent lake is formed.

This area has a complex geologic history that includes episodes of geologic deformation that are continuing at the present time. Consequently, rocks that underlie the basins and mountains may be highly fractured, thus permitting ground water migration under topographic divides from high altitude areas in the northern part of the system toward low areas in Death Valley. The combination of extensive areas of fractured rocks and large differences in altitude are the main factors that account for the existence of the Flow System. In the eastern part of the area ground water migration occurs primarily through fractured carbonate rocks and alluvial deposits that have filled the basins, and in the western part migration occurs primarily through fractured volcanic rocks and alluvial deposits that fill the basins.

### Ground-Water Hydrology

Some minor springs and seeps exist, primarily in mountains, throughout the study area. The yield of these springs is dependent upon local rainfall. They are characterized by seasonal or long periods of no flow, relatively low yield, and much



variation in water quality. These characteristics preclude a sustained habitat as necessary for most biota, and all but the most meager use by man. Thus no further reference will be made of these sources.

The main aquifers present in the Flow System include basin-fill aquifers, carbonate-rock aquifers, and volcanic-rock aquifers. In some localized areas ground-water is also transmitted through highly fractured zones of older noncarbonate sedimentary rock. Other rocks and deposits impede ground water flow. These include fine grained deposits in the basin-fill, some types of volcanic rock, noncarbonate sedimentary rocks that are not highly fractured, and crystalline rocks. Locations of the above listed aquifers and rocks are shown in figure 2. Note that in the eastern part of the system carbonate-rock aquifers are most extensive and in the northwest part of the system volcanic rocks are most extensive. Consequently, flow in the eastern and northwestern parts of the system is predominantly through carbonate-rock and volcanic-rock aquifers respectively. Some flow moves through basin-fill aquifers in all parts of the system.

Ground water moves from recharge areas in the higher-altitude parts of the system (mostly in the north) to lower altitude valleys in the southern part of the system and ultimately to Death Valley which is the lowest part of the system. The water flows down gradient along the path of least resistance, generally moving through the aquifers and around the deposits that impede flow. Along the route some water is discharged from springs, seeps, and shallow water table areas, such as the Ash Meadows area. The remainder flows to Death Valley to be discharged from springs, wet areas at the margin of the saltpan, or from the saltpan. The general configuration of aquifers and rocks that impede ground-water flow, and the general directions of ground water migration are shown on a schematic cross section in figure 3. In upgradient parts of the Flow System there is generally a downward component of flow as water moves down from recharge areas to the main aquifers; and in the down gradient part of the system there is generally an upward component of flow as water moves up toward areas of discharge. These discharge areas include the main water resources of Death Valley National Park and the Ash Meadows National Wildlife Refuge.

The areal distribution of ground-water recharge areas, ground-water discharge areas, and directions of ground-water flow are shown in figure 4. Locations and names of selected discharge areas of the Flow System are shown in figure 5. Note that the Furnace Creek, Death Valley Junction, and Scottys Junction Sites are all in proximity to discharge areas supplied by flow from upgradient parts of the Flow System. The Lida Summit Site differs in that it is a recharge area along the border of the Flow System.



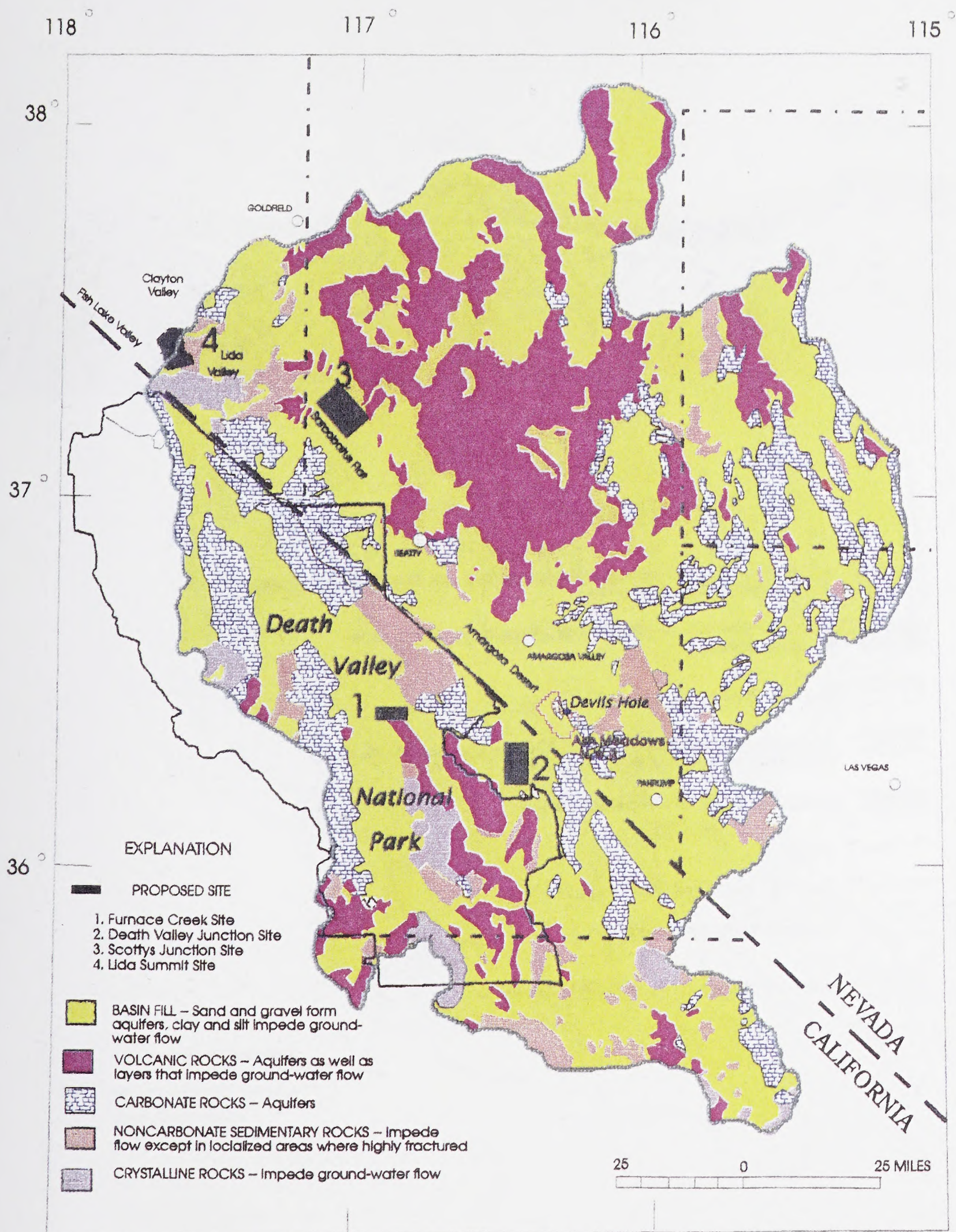
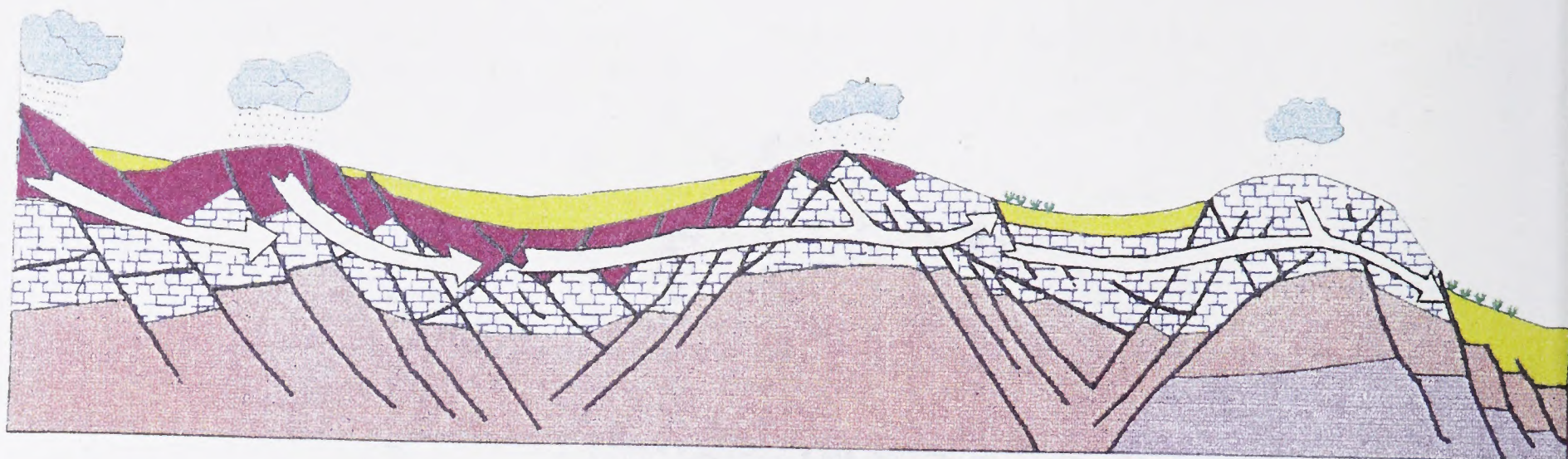


Figure 2 – Hydrogeologic units and their water-yielding properties





## EXPLANATION






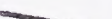



-  BASIN FILL – Sand and gravel deposits form aquifers, clay and silt deposits impede ground-water flow
-  VOLCANIC ROCKS – Aquifers as well as layers that impede ground-water flow
-  CARBONATE ROCKS – Aquifers
-  NONCARBONATE SEDIMENTARY ROCKS – Impede flow except in localized areas where they are highly fractured
-  CRYSTALLINE ROCKS – Impedes flow
-  FAULT
-  GROUND-WATER DISCHARGE AREAS
-  GROUND-WATER FLOW PATH
-  RAIN AND SNOW IN MOUNTAINOUS AREAS

FIGURE 3 -- Schematic section across mountain ranges and intervening basins, showing configuration at depth of aquifers and rocks that impede flow. Modified from Dettinger, 1989, fig. 2.)



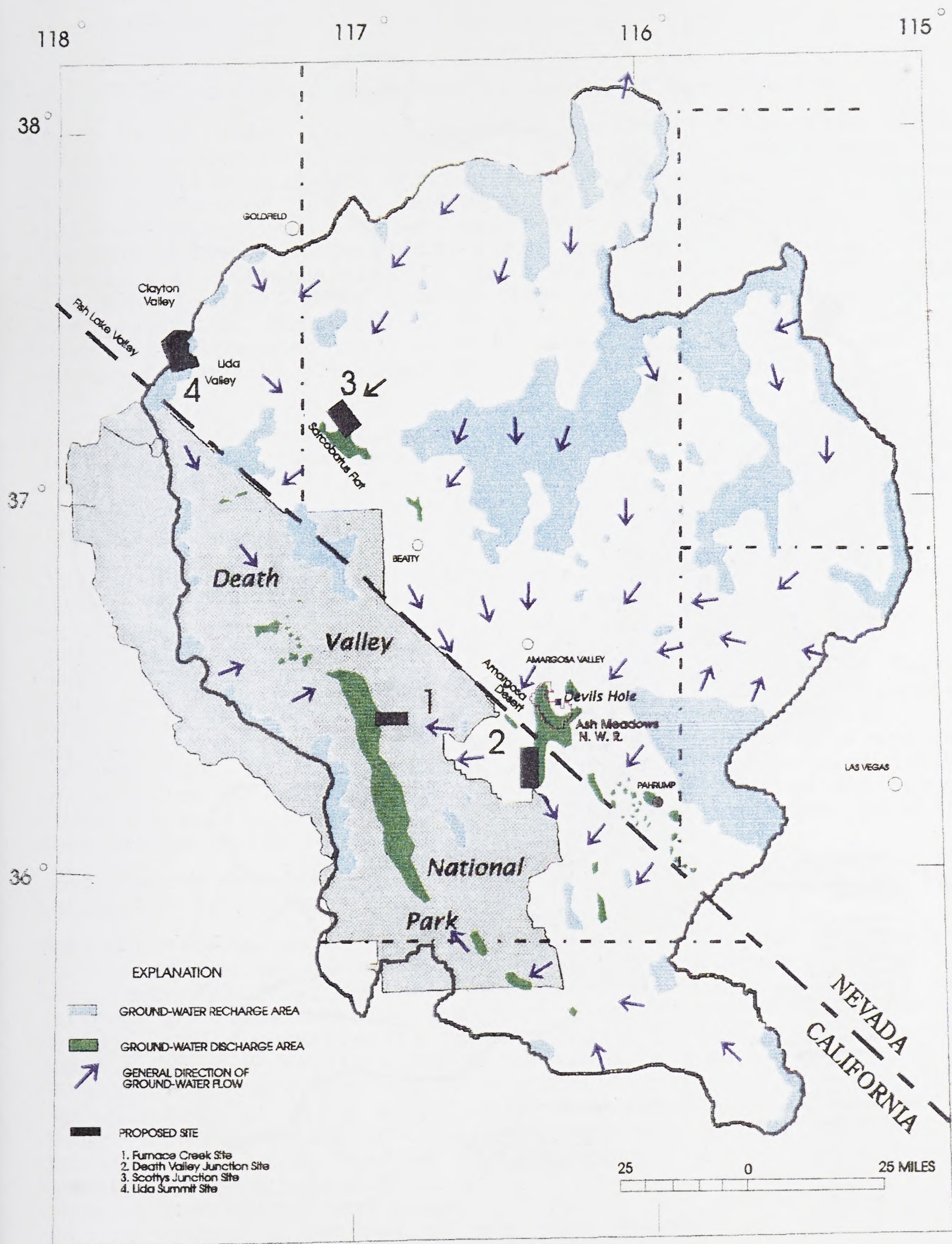


Figure 4 – Ground-water recharge areas, ground-water discharge areas, and general directions of regional ground-water flow.



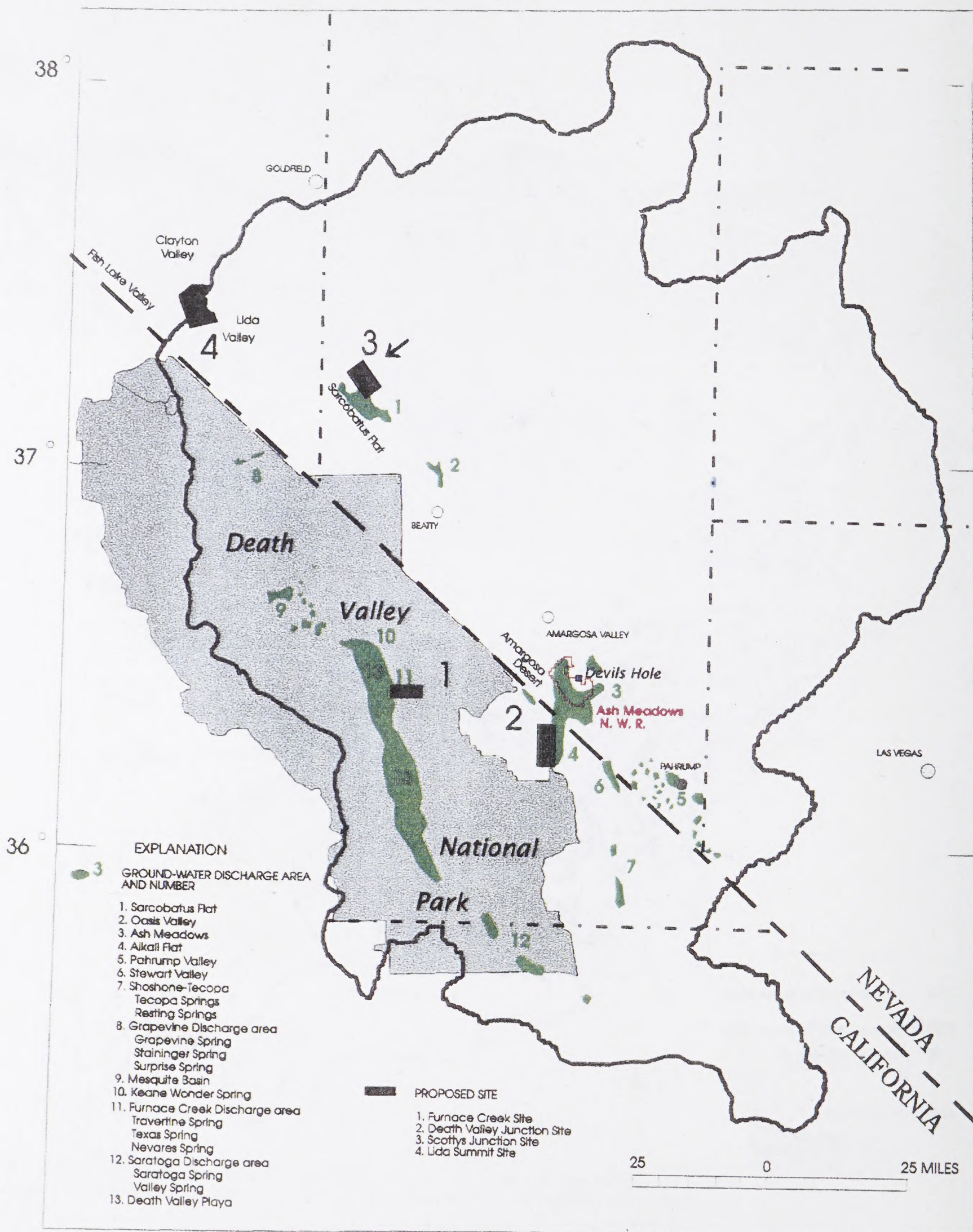


Figure 5 – Names and locations of selected ground-water discharge areas.



## Ground-water dependent resources of Death Valley

Death Valley water sources dependent entirely on the Flow System include: Grapevine Discharge Area - Grapevine, Staininger, and Surprise Springs; Keane Wonder Spring; Furnace Creek Discharge Area - Travertine, Texas, and Nevares Springs; Saratoga Discharge Area - Saratoga and Valley Springs; and Death Valley Playa (including seeps and wetlands along the margin) figure 5. These Springs are characterized by good water quality and relatively high flow rates of near constant discharge. Staininger Spring at Scottys Castle, Surprise, Travertine, Texas and Nevares Springs have been developed for potable water supplies. All springs support biological resources which can only exist with the spring flow.

Biological resources dependent entirely on the Flow System include the local ecosystems that have developed around the discharge areas listed above. Also, plants are distributed in an orderly way with respect to depth to ground water and to the salinity of the ground water. This general relation is shown in figure 6.

Death Valley Playa is the most prominent visual feature of Death Valley National Park and areas with evaporite rich crusts are dependent upon deposition of mineral salts on the surface as shallow ground water evaporates (Crowley and Hook, 1996). The playa, about 200 mi<sup>2</sup>, is below sea level and contains the lowest point in the Western Hemisphere. Although the playa infrequently ponds surface water runoff, Flow System contributions to the playa are considered the most important water source (Hunt and others, 1966, p. 44). These contributions are believed to be provided by infiltration of park spring water into valley alluvium and thence migration to the playa, and direct ground water movement from the Flow System to the playa.

## Ground-water dependent resources of Ash Meadows National Wildlife Refuge and Devils Hole.

The Ash Meadows National Wildlife Refuge is in the Ash Meadows portion of the Amargosa Desert (fig 1) and includes about 22,117 acres of spring-fed wetlands and alkaline desert uplands. The refuge provides habitat for biota found nowhere else in the world. This concentration of indigenous life distinguishes Ash Meadows National Wildlife Refuge as having a greater concentration of endemic species than any other local area in the United States.

Ash Meadows provides a valuable and unprecedented example of desert oases that are now extremely uncommon in the southwestern United States. Ash Meadows is a discharge point for a highly transmissive carbonate-rock aquifer that is widely distributed beneath the basins and ranges lying to the northeast. This aquifer drains a subarea of the Flow System that covers about 4,500 mi<sup>2</sup> and discharges about 17,000 acre-ft/yr of water from about 30 springs.



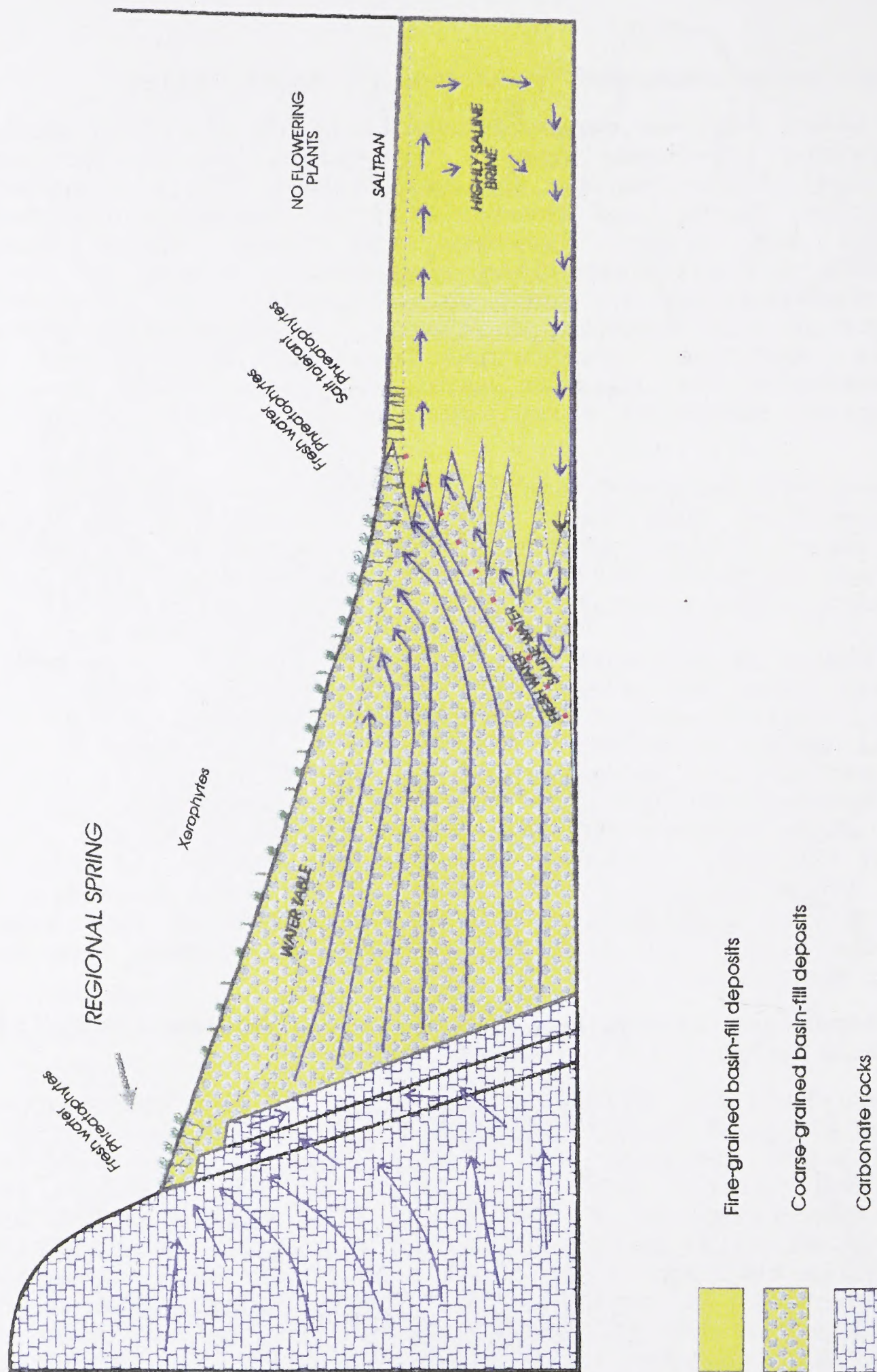


Figure 6. -- Relation between plants, depth to water, and salinity



Large discharge springs are shown on figure 7. Both Ash Meadows Refuge and the adjoining Devils Hole area are susceptible to impacts from pumping in adjacent areas. Also, sustained pumping from the Amargosa Desert and some upgradient areas will reduce spring discharge at the refuge and lower the pool level of Devils Hole.

A 40-acre tract of land containing Devils Hole is situated on the east boundary of the Ash Meadows National Wildlife Refuge (figure 7). This tract is a detached management area of Death Valley National Park. It contains a unique habitat in the form of a collapse depression in the limestone hills. The depression forms an open cavern partly filled by a warm pool that contains Cyprinodon diabolis, a unique species of desert pupfish. These fish evolved from late Pleistocene ancestors isolated in the former limestone spring when the pluvial lakes of the Death Valley area receded. In the late 1960's and early 1970's local irrigation pumping began lowering the pool level (figure 7) and there was concern that the species would become extinct. Actions to save the species resulted in a U.S. Supreme Court decision that mandated the level of the Devils Hole pool be above a maximum depth of 2.7 feet below a reference point set in the wall of Devils Hole. The local pumping ceased and the pool level recovered steadily until 1988. A gradual decline has been observed since 1988. As of December, 1996, the pool level was about 0.6 feet above the court mandated minimum level.



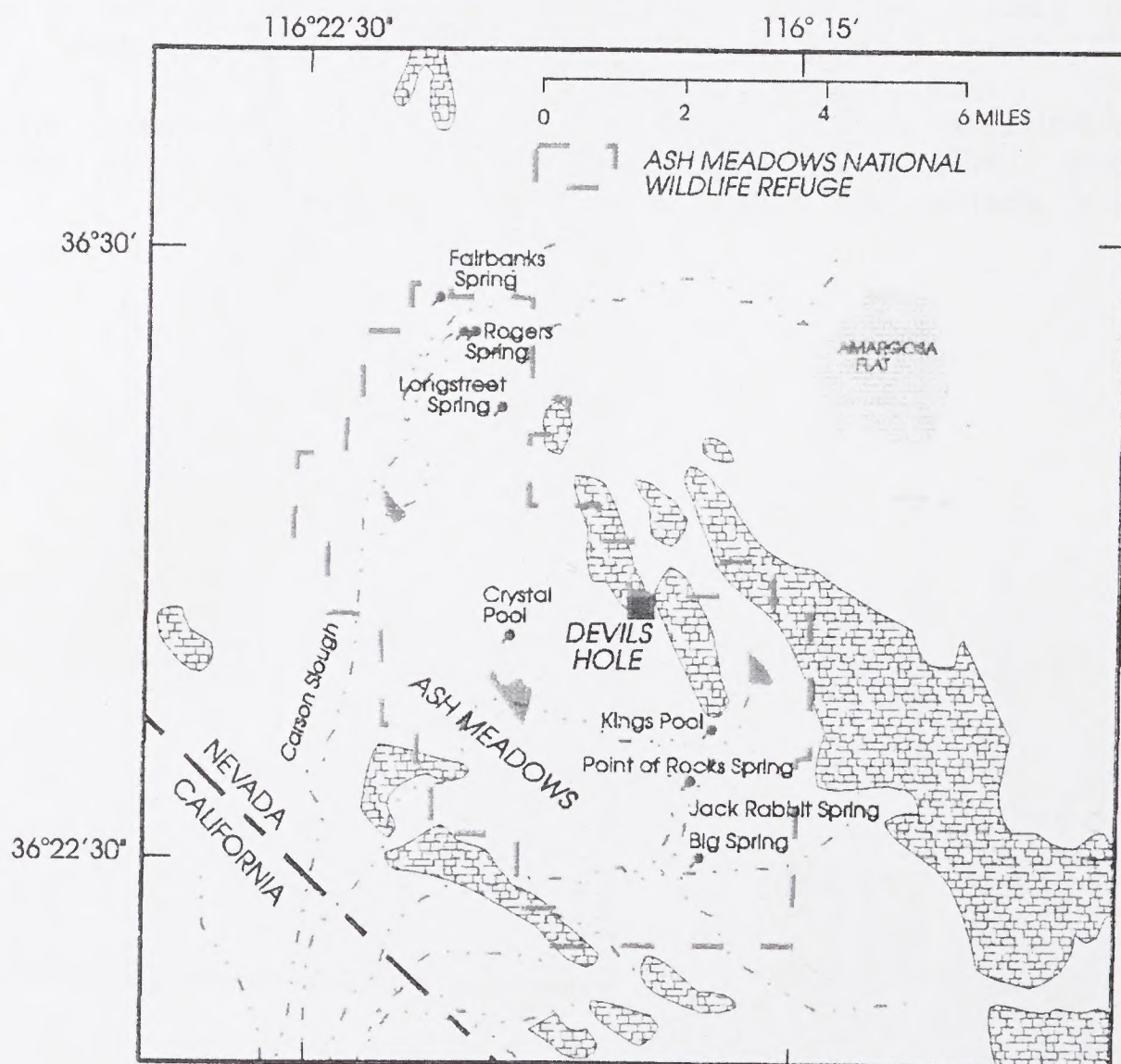
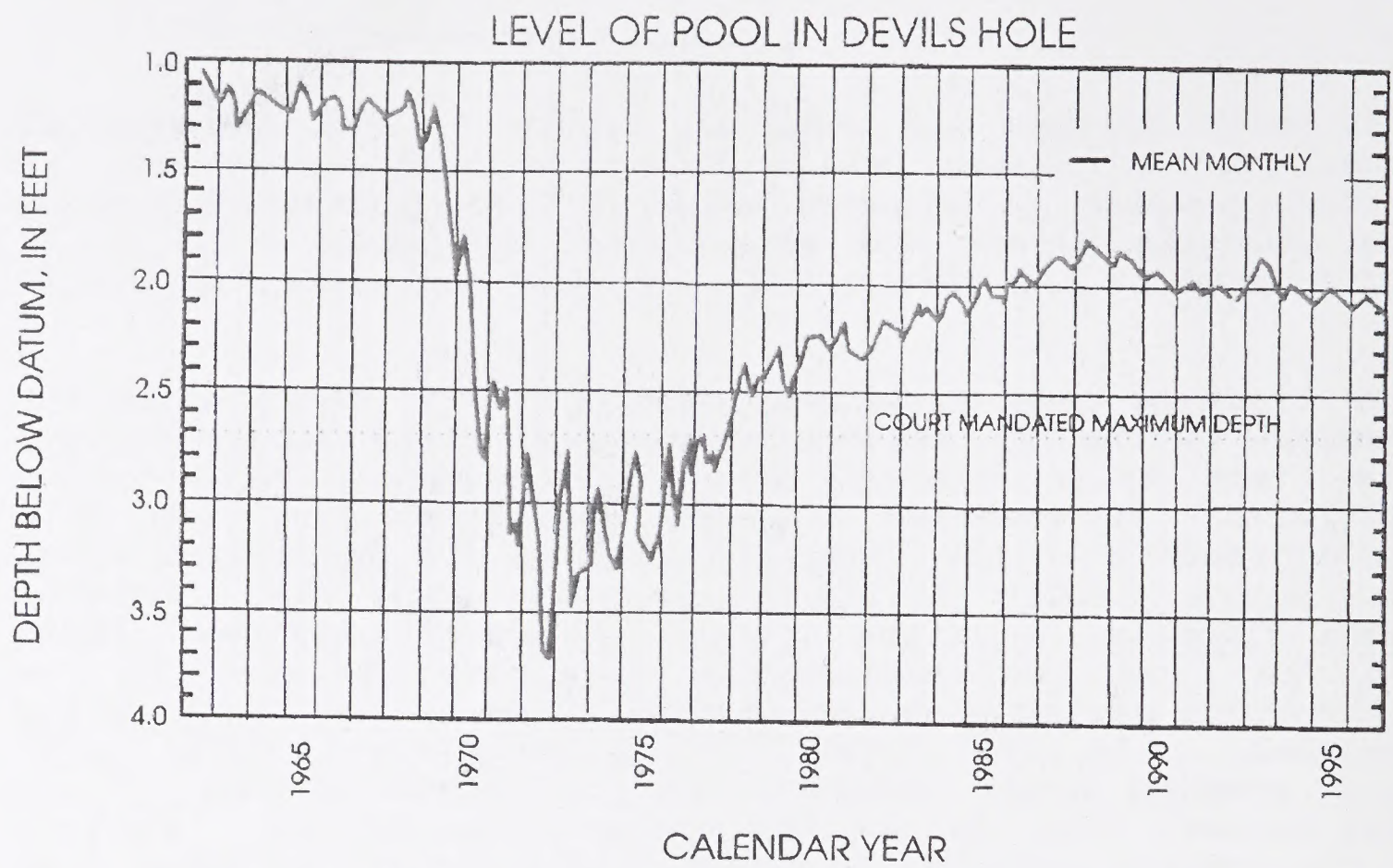


Figure 7. Hydrograph of Devils Hole pool and selected features of Ash Meadows National Wildlife Refuge



## SITE-SPECIFIC HYDROLOGIC EVALUATIONS OF TIMBISHA SHOSHONE PROPOSED RESERVATION LANDS

### Ground-water conditions at the Lida Summit Site (Lida Valley, Death Valley, Clayton Valley, and Fish Lake Valley)

The site is situated in Esmeralda County, Nevada and includes an area of about 70 mi<sup>2</sup> (figure 8). It includes the upper parts of Magruder Mountain and the Palmetto Mountains and is traversed by State Route 266. Altitude ranges from about 5,700 to just under 9,300 feet. The site contains topographic divides of four basins.

The location of this site relative to the Flow System is shown in figure 9. Ground-water conditions at this site are summarized in table 2 (at the back of this report).

Water occurrence - Ground water occurs in openings in granular deposits of shallow alluvial aquifers and in fractures of noncarbonate sedimentary and igneous rocks. Depth to water ranges from a foot or less near springs and seepage areas to more than 100 feet in other parts of the site. The water-table configuration at spring sites is controlled by local properties.

Water source to and migration from the site - Recharge is generated by infiltration of local precipitation on the site. Estimates of recharge are not available. There is no subsurface inflow, the water supply is generated entirely from precipitation that falls within the area. Ground water is discharged by subsurface outflow to down-gradient parts of the Flow System and by several small local springs. During wet years following intense rainfall, stream flow drains to each of the four basins.

Water quality - Water quality is satisfactory for most uses. No samples were available from the site, but a spring at Lida was reported to have a specific conductance of 595 and Pigeon spring just east of the area had a specific conductance of 446 (Rush, 1968, table 11 and Rush and Katzer, 1973, table 10). However, there may be local variability, well water near Lida had a specific conductance of 1,780. Field testing will be needed to determine quality at specific sites.

Existing and anticipated ground-water development - The area has little existing pumping. Several domestic wells may be located along Route 266 and in Lida. Field examinations will be needed before the amount of existing pumping, if any, can be determined.

North of the site significant pumping exists in both Fish Lake and Clayton Valleys. The Nevada Division of Water Resources, 1992, lists both areas as having committed resources greater than the estimated yields. The National Park Service is concerned about any potential reduction in subsurface outflow to Death Valley. Only minor development is anticipated over the next few decades.



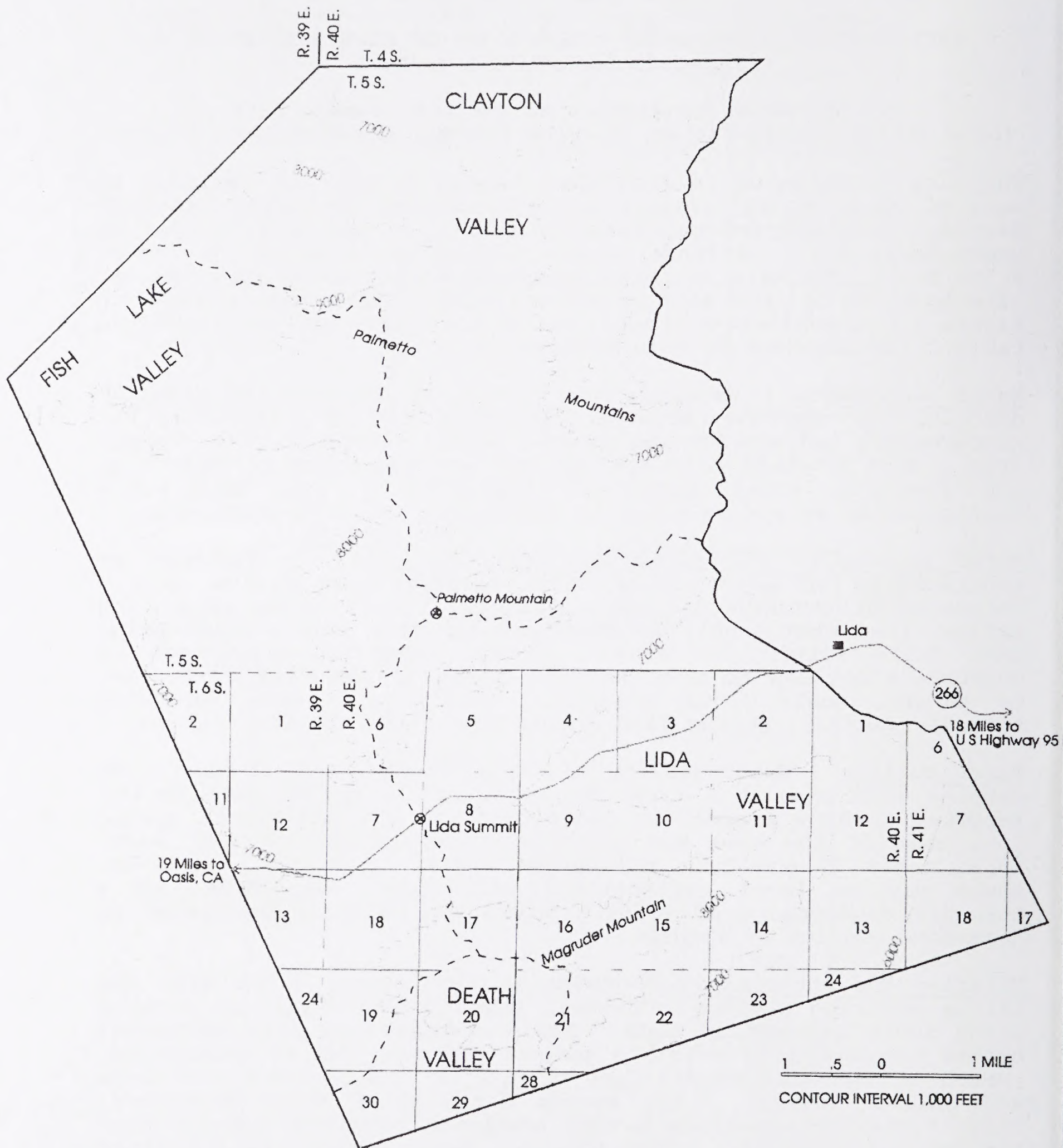


Figure 8 -- Lida Summit Site



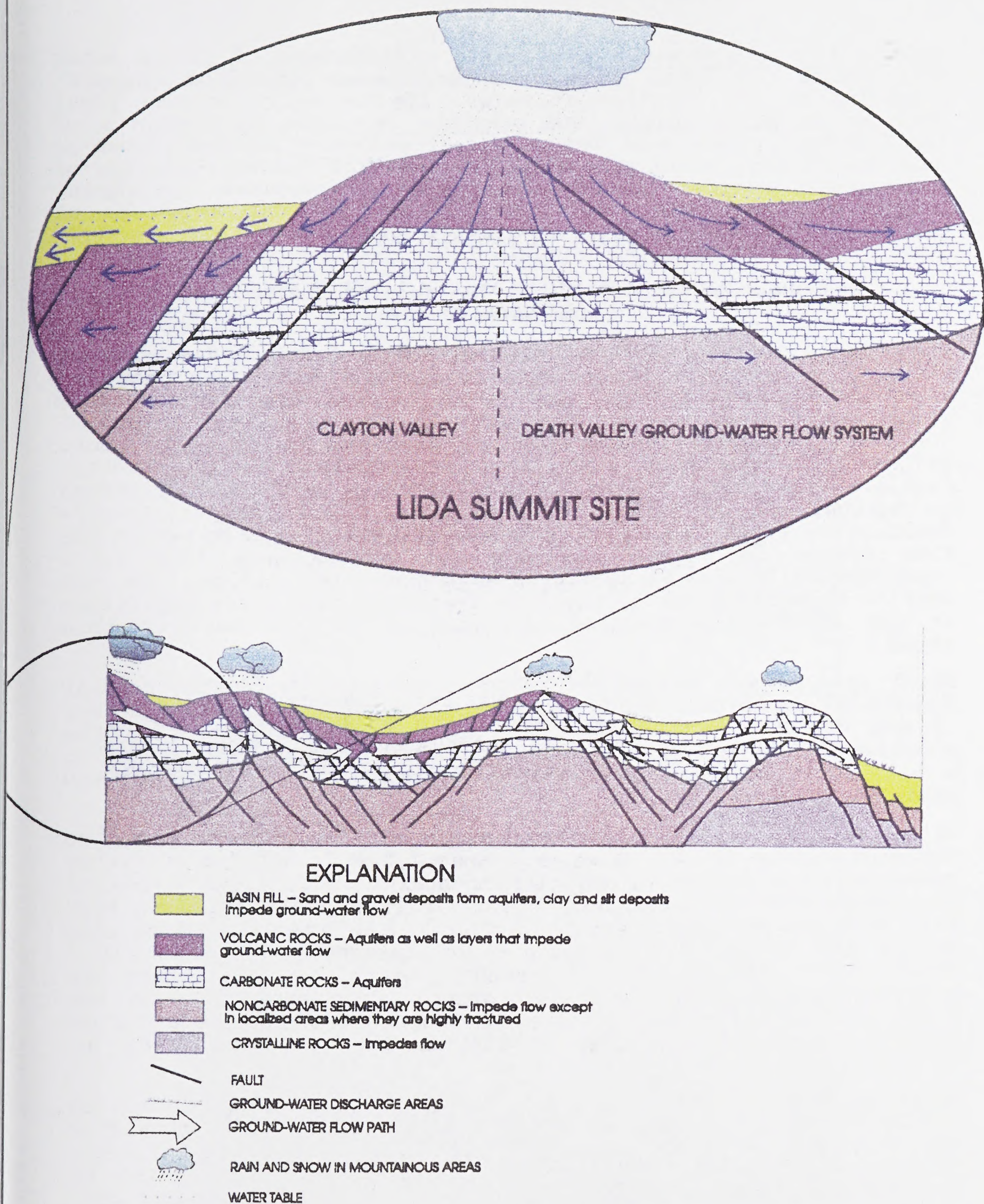


FIGURE 9 – Schematic sketch showing location of Lida Summit Site (Lida Valley, Death Valley, Clayton Valley, and Fish Lake Valley) relative to the Flow System



Impacts from ground-water development - Withdrawal of ground water will reduce the local spring flow and impact the Flow System. Depending on the location of wells, impacts will include: local declines in water levels, and possible decreases in discharge of local springs. Also, some decrease in ground-water outflow to one or more basins will occur due to shifting of the natural location of ground-water divides between the basins in response to pumping stress. Severity of effects will depend on the magnitude of pumping. Probable effects of pumping ground water at the Lida Summit Site are summarized in table 3 (at the back of this report).

#### **Ground-water conditions at the Scottys Junction Site (Sarcobatus Flat)**

The site is situated in Nye County, Nevada and includes an area of about 40 mi<sup>2</sup> (figure 10). It is situated mostly on the valley floor of Sarcobatus Flat just north of an area where shallow ground water is discharged and supports shrubs. U.S. Highway 95 forms the northeast boundary of the area and Nevada State Route 267 extends southwest from Scottys Junction towards Scottys Castle. State Route 267 is the most commonly used route of access to northern Death Valley National Park. Altitude at Scottys Junction is 4,050 feet. The location of this site relative to the Flow System is shown in figure 11. Sarcobatus Flat is a topographically closed basin with ground-water inflow from and outflow to other parts of the Flow System. Ground-water conditions at the site are summarized in table 4 (at the back of this report).

Water occurrence - Ground water occurs in openings in the granular basin-fill deposits. Depth to water ranges from less than 15 feet at the southern part of the site to more than 100 feet at the northern end of the site. At Scottys Junction, depth to water in a well 203 feet deep was reported to be 94 feet (Malmberg and Eakin, 1962, p.31).

Water source to and migration from the site - Little or no recharge occurs at the site. However, about 1,200 acre-ft/yr of recharge from precipitation in adjacent mountains migrates to Sarcobatus Flat (Malmberg and Eakin, 1962, p.15). Sarcobatus Flat also receives about 1300 acre-ft/yr of subsurface inflow from Lida Valley and Cactus Flat (Nevada State Engineer, 1971, p. 47). About 3,000 acre-ft/yr of ground water is discharged by evapotranspiration from shallow ground water areas around the playa in Sarcobatus Flat. There is also about 500 acre-ft/yr of subsurface outflow to Death Valley (Malmberg and Eakin, 1962, p. 17 & 18).

Water quality - Water quality at Scottys Junction has a dissolved solids content of about 560 mg/l which suggests that it should be suitable for most uses, however the fluoride content was 2.7 mg/l. This exceeds the acceptable limit of about 1.6 mg/l cited by Malmberg and Eakin, 1962, p. 26, and may pose some limits for use.



Figure 10. Scottys Junction site

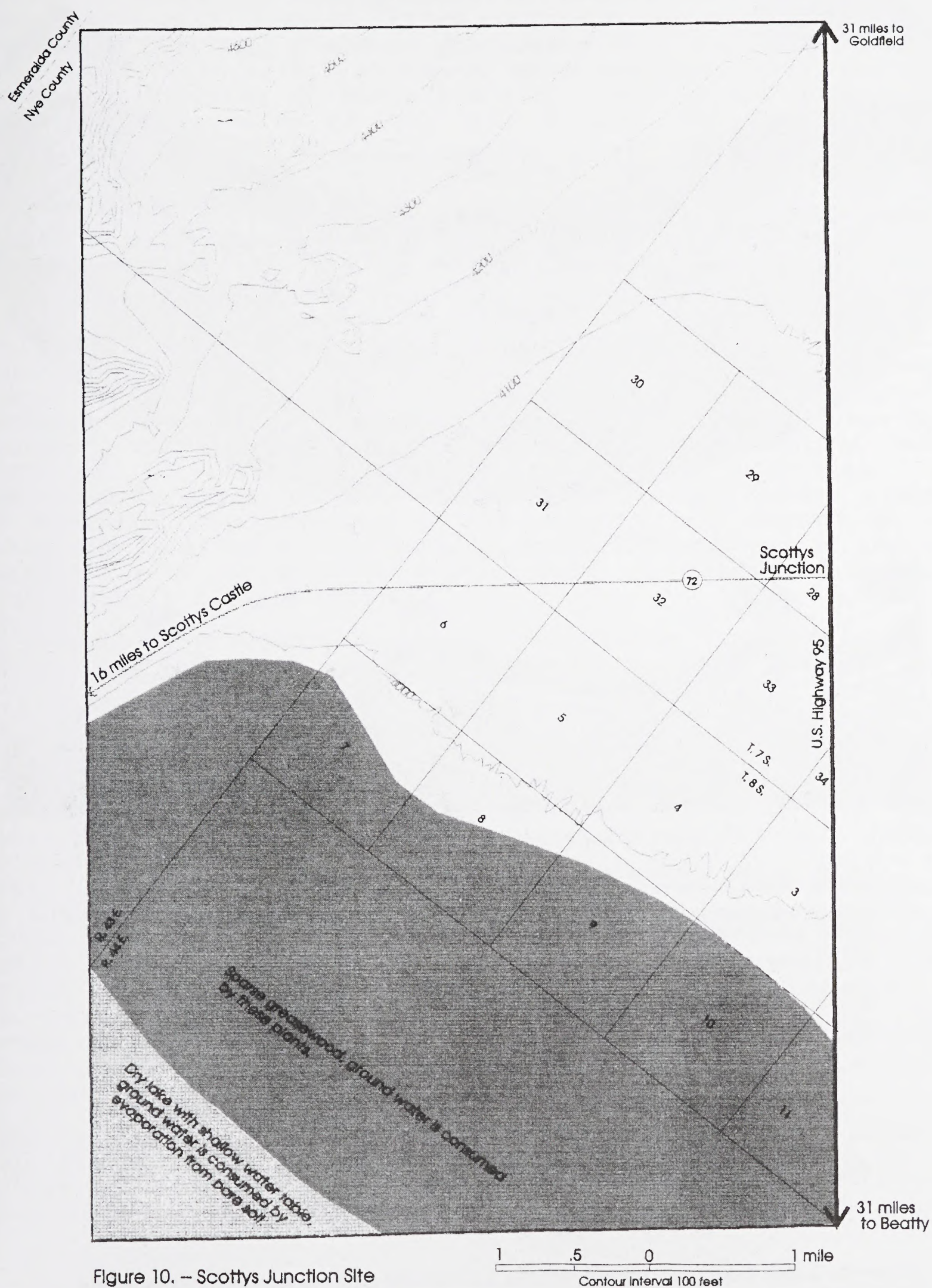


Figure 10. — Scottys Junction Site



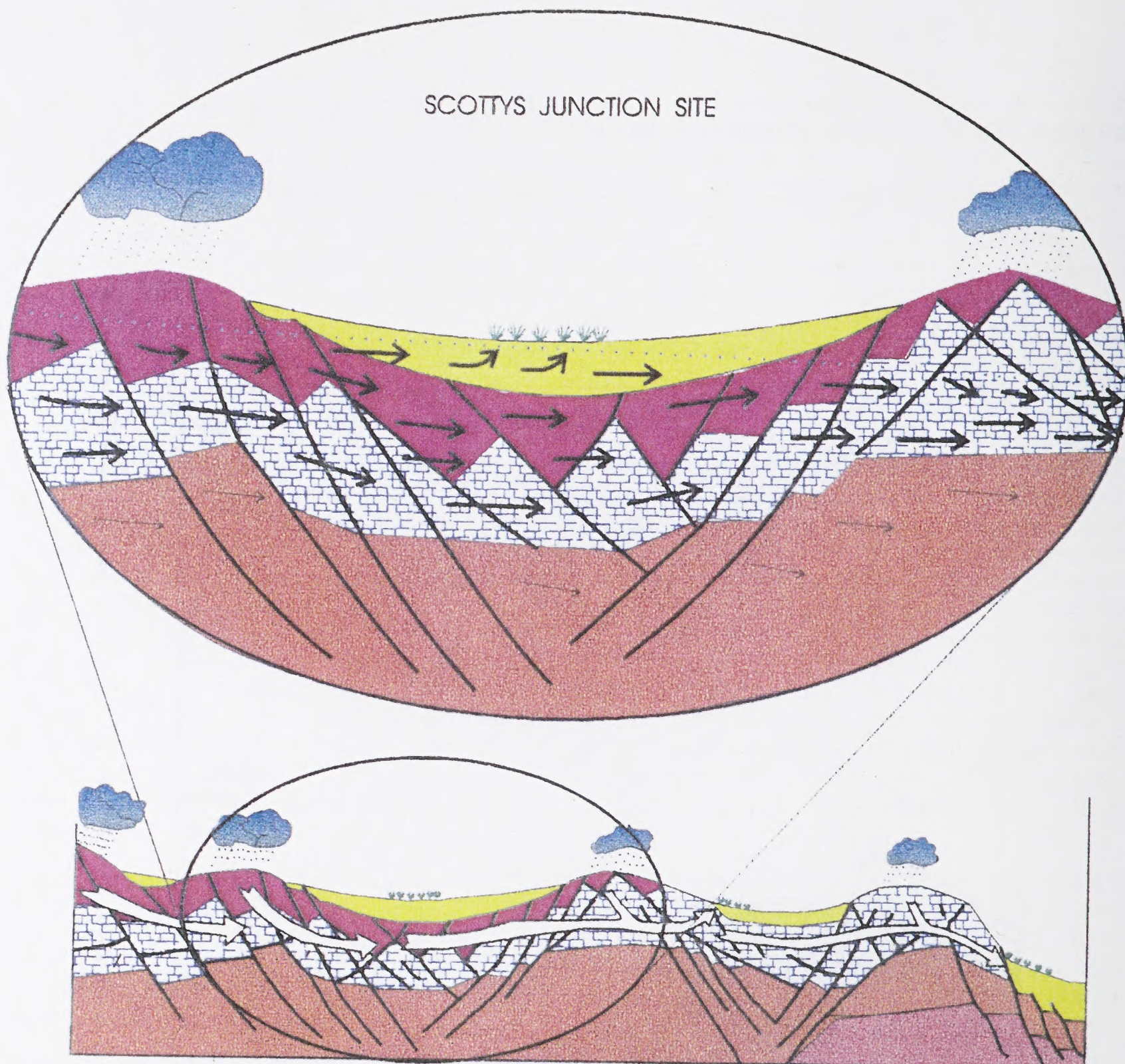


FIGURE 11 – Schematic sketch showing location of Scottys Junction site (Sarcobatus Flat) relative to the Flow System



Existing and anticipated ground-water development - Although several wells are present at the site, there appears to be no pumpage. There is some pumpage in Sacrobatus Flat along the eastern side of Highway 95, heavy pumpage is not occurring at this time. The perennial yield of Sacrobatus Flat has been estimated to be about 3,000 ac-ft/yr (Nevada State Engineer, 1971, p. 47). The Nevada Division of Water Planning (1992, p.23) stated that about 1,977 ac-ft/yr of the ground-water resource had been committed. Thus, in 1992, about 1,000 ac-ft/yr remained unappropriated. Only minor development is anticipated over the next few decades.

Impacts from ground-water development - Withdrawal of ground-water will impact the Flow System. Impacts will include: (1) local declines in water levels which will reduce playa evaporation, and reduce transpiration as plants dependent on shallow ground water die, and (2) reducing deep flow to Death Valley. Because there is continuity with the Flow System, pumping ultimately will reduce subsurface flow to Death Valley, and the outflow at Grapevine Discharge Area springs. These springs include Grapevine Springs, Staininger Spring (potable and landscaping water at Scottys Castle which is a visitor interpretative area of historical and architectural significance), and Surprise Spring (Ranger Station and housing). The severity of the effects will depend on the amount and location of the pumping. Probable effects of pumping ground water at the Scottys Junction Site are summarized in table 5 (at the back of this report).

#### **Ground-water conditions at the Death Valley Junction Site (Amargosa Desert)**

As a portion of the Amargosa Desert, the Death Valley Junction Site is in Inyo County, California and covers about 17 mi<sup>2</sup> (figure 12). It includes Death Valley Junction and is traversed by State Route 127. Amargosa Valley, NV is about 23 miles to the north, Shoshone, CA is about 28 miles to the south, and Death Valley, CA is about 30 miles to the west. The Ash Meadows National Wildlife Refuge and Devils Hole is about 10 miles to the north. Altitude at Death Valley Junction is about 2,030 feet. The location of this site relative to the Flow System is shown in figure 13. The Amargosa Desert is topographically open and surface flow drains to Death Valley via the Amargosa River. The climate is hot and dry with only two to four inches of rainfall in most years. During rare, wet periods the Amargosa River flows through part of the site. Ground-water conditions at the Death Valley Junction Site are summarized in table 6 (at the back of this report).

Water occurrence - Ground water occurs in openings in the granular basin-fill deposits. Depth to water ranges from a few feet in the central and eastern part of the site to several tens of feet in the southwest part of the site.



Figure 12. Death Valley Junction site

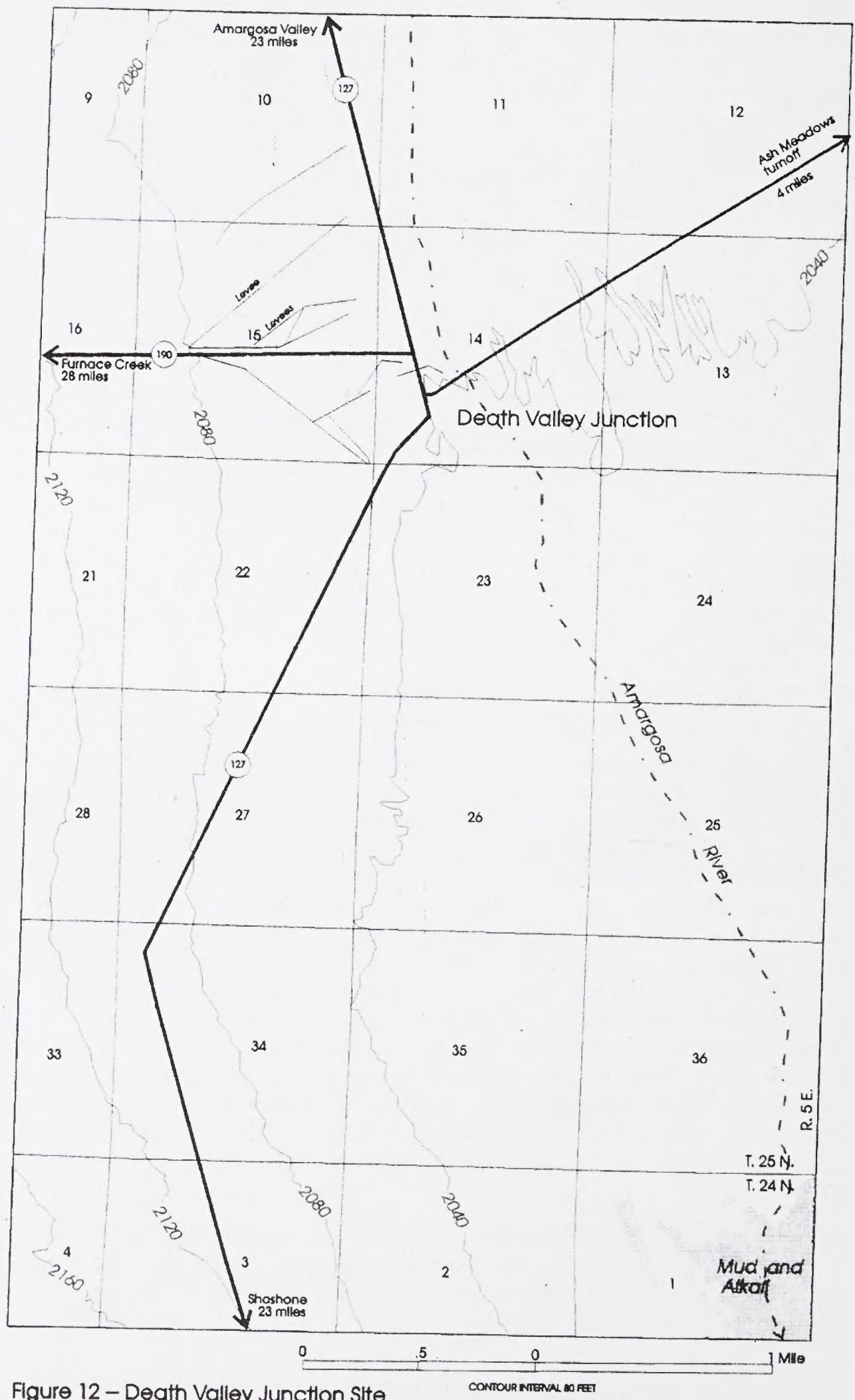
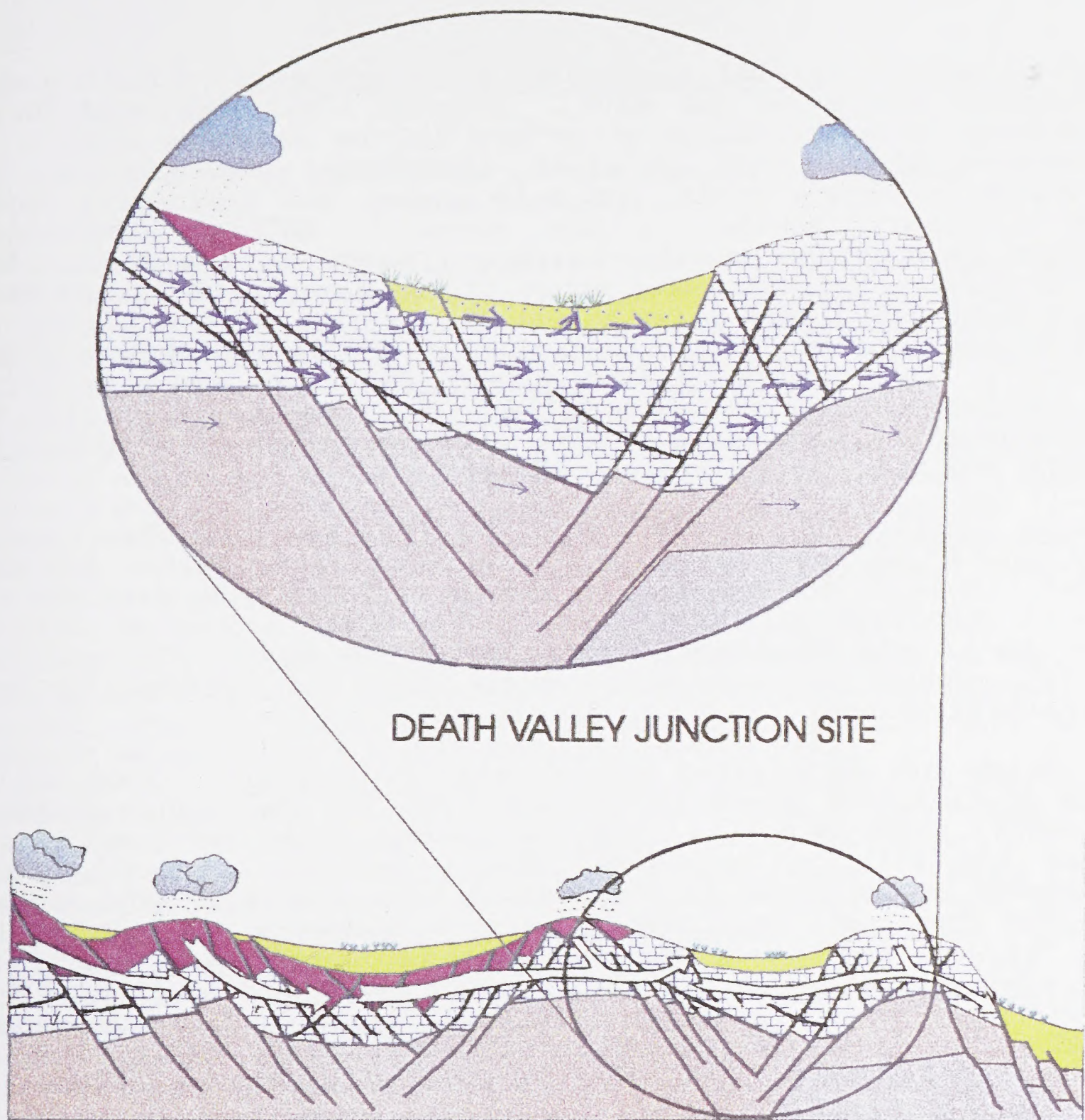


Figure 12 – Death Valley Junction Site





### EXPLANATION










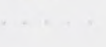
-  BASIN FILL – Sand and gravel deposits form aquifers, clay and silt deposits impede ground-water flow
-  VOLCANIC ROCKS – Aquifers as well as layers that impede ground-water flow
-  CARBONATE ROCKS – Aquifers
-  NONCARBONATE SEDIMENTARY ROCKS – Impede flow except in localized areas where they are highly fractured
-  CRYSTALLINE ROCKS – Impedes flow
-  FAULT
-  GROUND-WATER DISCHARGE AREAS
-  GROUND-WATER FLOW PATH
-  RAIN AND SNOW IN MOUNTAINOUS AREAS
-  WATER TABLE

FIGURE 13 – Schematic sketch showing location of Death Valley Junction site (Amargosa Desert) relative to the Flow System



Water source to and migration from the site - Little or no recharge occurs on the site. However about 600 acre-ft/yr of recharge from precipitation occurs in the Amargosa Desert. The Amargosa Desert also receives substantial Flow System inflow through carbonate rocks, volcanic rocks, and basin-fill deposits of tributary basins to the north. Natural discharge by evapotranspiration in the Amargosa Desert totals about, 24,000 acre-ft/yr. This includes about 17,000 acre-ft/yr in Ash Meadows and about 7,000 acre-ft/yr in the Alkali Flat discharge area which is in and adjacent to the east part of the site (Walker and Eakin, 1963, p. 40). There is also about 3,000 to 19,000 acre-ft/yr of subsurface outflow to Death Valley. Virtually all of this water originates as subsurface inflow from upgradient Flow System areas north and east of the Amargosa Desert.

Water quality - Ground-water quality is probably poor for household use based on an analysis reported by Walker and Eakin, 1963, table 9. The sample was from a well 146 feet deep and had a total dissolved solids content of 874 mg/l, a sodium content of 325 mg/l, and bicarbonate content of 556 mg/l. It also had a boron content of 1.3 mg/l which might be harmful to boron-sensitive plants.

Existing and anticipated ground-water development - Some wells in the vicinity of Death Valley Junction are currently pumped for domestic water supplies, but the current level of pumping at or near the site is considered low. However, currently in the Amargosa Desert about 12,600 acre-ft were pumped in 1994 and about 15,000 acre-feet were pumped in 1995 (LaCamera and others, 1996, p. 74). In the Nevada part of the area, permits and certificates to pump ground water total to about 42,000 acre-ft/yr (Nevada Division of Water Planning, 1992, p. 25). Recent developments at Stateline, Nevada and north to the village of Amargosa Valley, prompt the concept that relatively rapid growth on private land within the valley has begun.

Impacts from ground-water development - The existing pumping in the Amargosa Desert (more than 15,000 acre-ft/yr in 1995) and the total of more than 40,000 acre-feet per year of permitted and certificated water rights will impact the Flow System causing decreases in discharge at Ash Meadows, and decreases in subsurface outflow to Death Valley. Also, the pool level in Devils Hole may decline in response to the cumulative stresses from present pumping.

New pumping at this site, or in other areas of the basin, will add to the cumulative pumping stress. Reductions in outflow to Death Valley will reduce subsurface flow to Death Valley Playa and outflow at the Furnace Creek Discharge Area and Keane Wonder Spring. Severity of the effects will depend on the amount and location of pumping. Probable effects of pumping ground water at



the Death Valley Junction Site are summarized in table 7 (at the back of this report).

#### Ground-water conditions at the Furnace Creek Site (Death Valley)

The Furnace Creek site is situated in Death Valley National Park, Inyo County, California and covers about 20 mi<sup>2</sup> (figure 14). It includes the lower parts Furnace Creek Wash, part of the Furnace Creek alluvial fan, and a short segment of the ephemeral channel of Salt Creek in the center of the Death Valley playa. It is traversed by State Route 190. The location of this site relative to the Flow System is shown in figure 15. The climate is hot and dry with only one or two inches of rainfall in most years. Altitude ranges from slightly more than 200 feet below sea level to about 400 feet above sea level. A summary of groundwater conditions at the Furnace Creek Site is given in table 8 (at the back of this report).

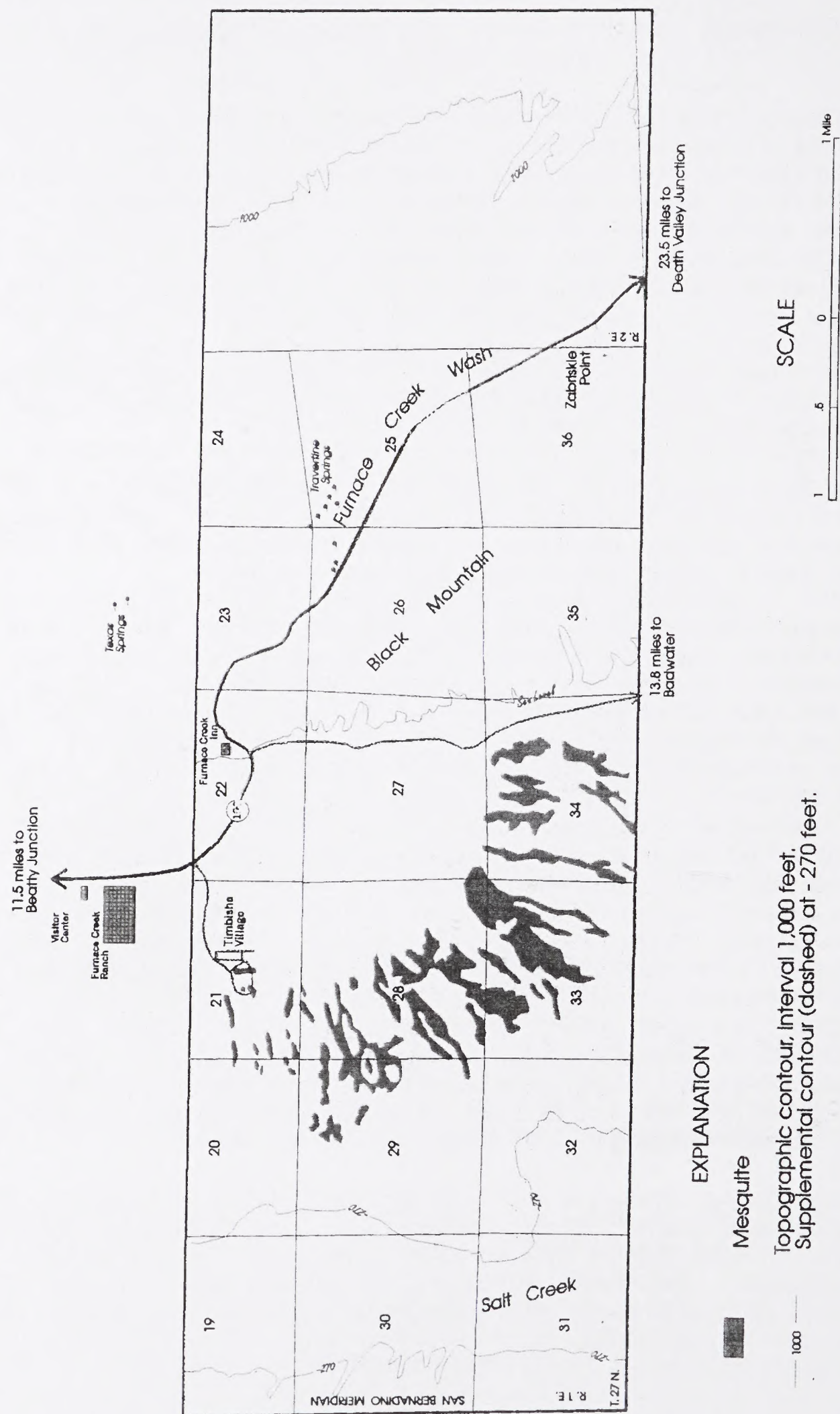
This site is hydrologically unique in that both a Flow System discharge area and the terminus of the Flow System are present. Also, the site is unique because moderate development at and near Furnace Creek Ranch is present adjacent to the site.

Located adjacent to Death Valley Playa, this site contains portions of the Furnace Creek Discharge Area composed of Travertine, Texas, and Nevares Springs, and seeps. These Flow System sources are situated above the valley floor on the upper parts of alluvial fans adjacent to the Funeral Mountains. These springs discharge about 5,100 ac-ft/yr (Hunt and others, 1966) of good-quality water. On the lower part of the alluvial fan the water table becomes shallow and stands of phreatophytes are present. These plants are distributed in an orderly way with respect to the salinity of the ground water. Starting with the least salt tolerant these plants are: Honey mesquite, Arrowweed, Four-wing saltbush, Alkali sacaton grass, Tamarask, Inkweed, Saltgrass, Rush, and Pickleweed. The general relation between plants, depth to water, and salinity is shown in figure 6. In the present climate, ground water probably is more important than surface water as a source of water on the saltpan (Hunt and others, 1966, p. 44). The formation of evaporate deposits and areas of patterned ground on the saltpan is dependent, in part, on saline ground water (Crowley and Hook, 1996, p. 643).

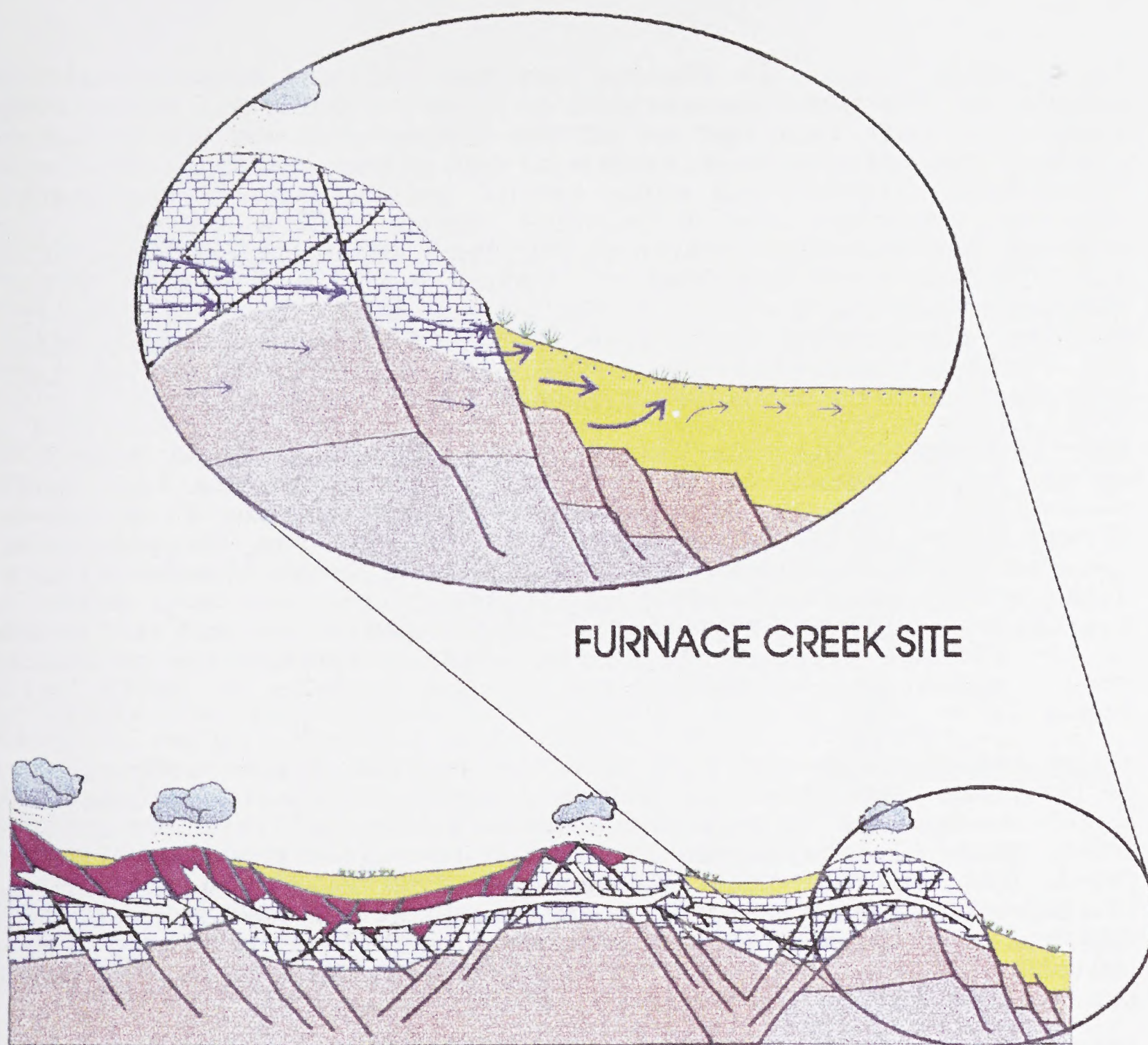
Travertine and Texas Springs are developed water supplies which provide potable and other water needs for the Timbisha Village, Fred Harvey Inc., and Death Valley National Park headquarters and nearby campgrounds. Nevares Springs, also of the Furnace Creek Discharge Area, is developed and provides potable and other water needs for the Cow Creek Area.



Figure 14. Furnace Creek site







### EXPLANATION










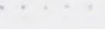
-  **BASIN FILL** – Sand and gravel deposits form aquifers, clay and silt deposits impede ground-water flow
-  **VOLCANIC ROCKS** – Aquifers as well as layers that impede ground-water flow
-  **CARBONATE ROCKS** – Aquifers
-  **NONCARBONATE SEDIMENTARY ROCKS** – Impede flow except in localized areas where they are highly fractured
-  **CRYSTALLINE ROCKS** – Impedes flow
-  **FAULT**
-  **GROUND-WATER DISCHARGE AREAS**
-  **GROUND-WATER FLOW PATH**
-  **RAIN AND SNOW IN MOUNTAINOUS AREAS**
-  **WATER TABLE**

FIGURE 15 – Location of Furnace Creek site (Death Valley) relative to the Flow System



Water occurrence - In the eastern part of the site ground-water occurs in fractures in carbonate rocks. Depth to water ranges from at or near land surface in the vicinity of springs to several hundred feet at the east border of the site. Beneath the Furnace Creek Wash alluvial fan water occurs in openings in the granular alluvial deposits. Depth to water ranges from a few feet at the edge of the saltpan to almost 100 feet at the upper edge of the fan. A National Park Service ground water observation well is located along the northern border of the site, north of Travertine Springs. The present water level is about 74 feet. A test well on the Furnace Creek fan about 0.4 mile north of the site had a reported depth to water of 38 feet (Miller, 1977, p. 63).

Water source to and migration from the site - Virtually all of the ground water supply is by inflow from recharge areas at higher elevations in the northern and eastern parts of the Flow System. Ground water inflow moves through or beneath the Amargosa Desert and Funeral Mountains to reach the Furnace Creek Discharge Area. This water is discharged by springs and adjacent areas of vegetation, by Mesquite and other phreatophytes on and at the base of the Furnace Creek alluvial fan, and by evaporation of shallow ground water at the margin and on the surface of Death Valley Playa.

Water quality - Spring flow from the Furnace Creek Discharge Area is potable. The dissolved solids content of water from Travertine and Texas Springs is reported to be 600-700 mg/l (Miller, 1977, p. 37). These springs currently provide the water supply for Furnace Creek Inn, Furnace Creek Ranch, the Park Headquarters, and the Timbisha Village. Water from the test well on the Furnace Creek fan had a dissolved solids content of 1,300 mg/l and is not as suitable for use. Water on the lower the Furnace Creek fan may be brackish or saline and probably is not suitable for use.

Existing and anticipated ground-water development - No well pumping exists, water supplies are obtained by diverting flow from Furnace Creek Discharge Area springs and alluvium of Furnace Creek Wash which is saturated with spring flow. Total discharge from Travertine and Texas Springs was measured by Pistrang and Kunkel (1964) to be about 5 cubic feet per second (cfs) or 3,600 acre-feet per year, and Nevares Springs flow was determined to be 0.72 cfs.

Some orifices of Travertine and Texas Springs, and a French Drain system in Furnace Creek Wash, have been developed to supply a water storage and distribution system used by Fred Harvey Inc., Death Valley National Park, and Timbisha Shoshone Village. Built in the late 1970's, the system permits water which is collected at springs during times when the storage tank is full, to overflow the system in proximity to the source. This reduces to the extent possible the amount of water collected, keeping spring flow at or near the natural spring orifice to support native biota. Also, an



Inn Tunnel source captures alluvial water from Furnace Creek Wash, a portion of the flow is used by Fred Harvey Inc. for irrigation and the remainder recharged to the alluvium. The two water collection systems are capable of diverting approximately 2.9 cfs (NPS personal communication)

Impacts from ground-water development - The possibility of pumping the observation well was discussed by Pistrang and Kunkel (1964).

Their analysis was that such pumping would be from a constant inflow rate, thus pumping would directly reduce nearby spring flow. Also, such pumping could reduce ground water flow from the spring area to alluvial fans, which in turn permit water migration to the playa. Thus there appears to be little hydrologic difference between pumping from wells upstream (east) of the springs and diversion of spring flow. Increased diversion of Travertine and Texas Spring flow will reduce saline and fresh-water spring flow, transpiration by phreatophytes, and evaporation and salt deposition on the playa. The severity of the effects will depend on the amount and location of the pumping. Probable effects of pumping ground water at the Furnace Creek Site are summarized in table 9 (at the back of this report).

Development of spring discharge simply diverts the water from flowing in natural channels down gradient from the springs, to areas of use. The length of flowing water and the quantity of water infiltrating into the natural channel(s) will be reduced by diverting water. Thus natural habitats at springs are reduced. From a water budget perspective only, the consequences of diverting water may be substantially offset by diverted water infiltration at or near places of use. However, water use can seriously reduce water quality. Also, conditions at the point of recharge may not permit native biota of the spring site due to various factors, such as human presence, noise, or soil type.

#### **WATER-RELATED ISSUES**

Issues relating to water development at the four Timbisha Shoshone proposed sites are outlined in table 10. Issues at the Furnace Creek Site differ from the others because of it's location within the boundaries of the Death Valley National Park and it's location in the terminal part of the Flow System. The main issues are environmental constraints and obtaining dependable supplies from the existing distribution system. The other three sites are in upgradient parts of the Flow System where a concern is the magnitude of pumping and associated reductions in subsurface flow to Death Valley. At the Lida Summit site reductions in outflow to Fish Lake, Clayton, and Lida Valleys are also potential issues. At the Scotty's Junction Site potential reduction of flow to the Grapevine Discharge area is a concern. At the Death Valley Junction site basin-wide over appropriations and potential interstate conflicts are issues. Adverse effects on ground-water discharge at the Ash Meadows National Wildlife Refuge and declines of the pool level at Devils Hole are also concerns at this site.



Table 10. Summary of Issues

Lida Summit Site

- MAGNITUDE OF PUMPING -- Adverse effects from pumping vary with the rate, heavy pumping may produce undesirable effects. Low rates of pumping have small effects that may be difficult to detect away from the pumping well. However, even these small changes are cumulative. A specific concern at this site is reduction of subsurface inflow to Fish Lake Valley, Clayton Valley, Lida Valley, and Death Valley.

Scottys Junction Site

- MAGNITUDE OF PUMPING -- Adverse effects from pumping vary with the rate. Low rates of pumping have small effects that may not be detectable away from the pumping wells. However, these small changes are cumulative with effects of existing and future off-site pumping. A specific concern at this site is reduction of subsurface flow to the Grapevine discharge area in Death Valley. Any magnitude of pumping will cause at least small decreases in subsurface flow to Death Valley.
- WATER QUALITY -- Water quality may be suitable for most uses however high fluoride concentrations may be a problem. Specific water quality tests should be conducted at any proposed site to insure that water quality will be within limits acceptable for the intended use.

Death Valley Junction Site

- BASINWIDE OVERAPPROPRIATION -- The Amargosa Desert is already overappropriated to pump ground water from the Nevada part of the basin. The existing appropriations pose a threat to natural discharge in the Ash Meadows National Wildlife Refuge, to the pool level in Devils Hole, and to subsurface flow to the Furnace Creek Discharge area of Death Valley. Any additional pumping in the vicinity of Death Valley Junction would add to the existing problem.
- WATER QUALITY -- Water quality may be marginal. Specific water quality tests should be conducted at any proposed sites to insure that water quality will be within limits acceptable for the intended use.
- SURFACE OUTFLOW TO DOWNSTREAM AREAS -- During wet years winter seepage into the channel of the Amargosa River provides some water to wetlands in downstream areas. Heavy pumping near Death Valley Junction will, to an undetermined extent, reduce this seepage. Site specific evaluations will be needed to evaluate the magnitude of this issue.
- MAGNITUDE OF PUMPING -- The basin is already overappropriated and water-level declines are anticipated throughout the valley. Any additional pumping will cause additional undesirable effects on the following: 1) natural discharge in the Ash Meadows National Wildlife Refuge; 2) the pool level of Devils Hole; 3) subsurface flow to the Furnace Creek Discharge area in Death valley.
- CARBONATE-ROCK AQUIFERS -- Deep wells that pump water from carbonate-rocks aquifers under the site will reduce subsurface flow to the Furnace Creek discharge area of Death Valley.

Furnace Creek Site

- EFFECTS OF PUMPING ON SPRINGFLOW -- Ground-water development at the Furnace Creek site will effect spring discharge. Diversions of spring discharge managed so that water not consumed is used to support areas of natural discharge have fewer undesirable effects. Also, if there is no pumping then there is no risk of causing poor-quality water to flow toward the site. Thus, in terms of impacts, limited diversion and use of spring discharge is favored over development by pumping.
- DEPENDABLE SUPPLY -- Dependable diversions may be less than the design capacity of the distribution system. Any natural or man-related fluctuations in spring discharge will cause variations in the amount of water available for use. Caution should be exercised to insure that the higher ranges of discharge, which are subject to variation, are not diverted for uses that require a dependable supply.



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Table 2. -- Summary of ground-water conditions, Lida Summit Site

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**Aquifers:** The site is mostly in a mountainous area underlain by noncarbonate sedimentary and igneous rocks and shallow alluvial deposits. Deep basin-fill aquifers and extensive carbonate-rock and volcanic-rock aquifers are not present. Ground water is transmitted through shallow alluvial aquifers and zones of fractured noncarbonate sedimentary and igneous rock.

**Shallow alluvial aquifers--** These aquifers consist of deposits of sand, gravel, and some silt or clay. They have been deposited in local depressions or relatively flat areas and overlie noncarbonate sedimentary rocks. Thickness is variable and not precisely known. Most of these deposits are probably between several feet to several tens of feet thick but in some areas thickness could exceed 100 feet. Sand and gravel are capable of readily yielding water to wells but thin zones of saturated material and a restricted extent will adversely effect sustained pumping yields. Depending upon specific locations and well construction, potential sustained well yields may range from several gallons per minute to several tens of gallons per minute. Higher yields may be possible if areas of relatively thick and extensive alluvium are discovered.

**Noncarbonate sedimentary and igneous rocks --**This is an assemblage of quartzite, sandstone, shale, intrusive rock, and some volcanic rock. These rocks generally impede ground-water flow and transmit water readily only where they contain a numerous open and interconnected fractures. Their main function, where they are permeable enough, is to transmit mountain recharge to downgradient valleys (Fish Lake Valley, Clayton Valley, Lida Valley, and Death Valley). High well yields are not probable but may be possible in localized areas.

**Confining units:** In many areas the noncarbonate sedimentary and igneous rocks act as relative barriers to ground-water flow. One consequence of this is that there are numerous small springs in the Palmetto Mountains and Magruder mountain.

**Source of water:** The ground-water resource is supplied by recharge (infiltration) of local precipitation. There is no subsurface inflow.

**Depth to water:** Depth to water may vary greatly due to variations in local topography. It ranges from land surface in spring and seepage areas to more than 100 feet on other parts of the site

**Direction of ground-water flow:** Flow on the site generally follows the topography and moves from high areas in the mountains toward lower areas in the adjacent valleys. Water that moves south and southeast flows toward Death Valley.

**Replenishment:** Recharge occurs on the site. Probably between 3% to 7% of the precipitation ultimately becomes recharge to adjacent valleys. Some additional recharge that supports discharge for perched springs also occurs.

**Discharge:**

**Perched springs and seepage areas --** Shallow circulating ground water is discharged from several small perched springs and seepage areas.

**Subsurface outflow to adjacent valleys --** Ground water flows from the site to adjacent downgradient areas in Fish Lake Valley, Clayton Valley, Lida Valley, and Death Valley. Subsurface outflow from Lida Valley to Sarcobatus Flat is 700 ac-ft/yr.

**Pumping --** Several wells are pumped for domestic purposes. Total pumpage on and adjacent to the site is low.



Table 3. -- Probable effects of pumping ground water at the Lida Summit Site

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- Water levels in the vicinity of pumping wells will decline. At low pumping rates, water-level declines will be small and may be masked by changes due to natural factors such as seasonal fluctuations, short-term climatic fluctuations, and changes in barometric pressure.
- In time, the water-level declines will spread out from the pumping wells to areas where ground water is being discharged by natural processes. The water-level declines will then cause natural discharge to decrease until the change in discharge offsets the draft due to pumping. In localized parts of the area it may be possible that water-level declines may cause additional recharge to occur. This could happen if water level declines caused ground-water divides to move and capture recharge from an adjacent area or if water levels in localized wet areas declined and allowed recharge to occur where previously it was rejected.
- The restricted areal extent of shallow alluvial aquifers and probable low permeability of underlying noncarbonate sedimentary and igneous rocks may adversely impact high sustained well yields. Parts of the site may not be capable of sustaining high rates of pumping. Additional on-site investigations will be needed before this possibility can be adequately evaluated.
- Discharge that will be reduced includes discharge from small springs and seeps, ground-water consumption by grasses and associated plants in small meadow areas, and subsurface outflow to downgradient areas (including Death Valley). Additional recharge may occur along short reaches of perennial streams. The severity of the reductions will vary in proportion to the magnitude of pumping.



Table 4. -- Summary of ground-water conditions, Scottys Junction Site

Aquifers: Basin-fill aquifers underlie the entire area to depths probably in excess of 1,000 feet. These aquifers are underlain by volcanic rocks and possibly some carbonate-rocks.

Basin-fill aquifers-- These aquifers consist of deposits of sand and gravel that are interbedded with layers of silt and clay. Sands and gravels are capable of readily yielding water to wells whereas the silt and clay layers yield little or no water to wells. Depending upon specific locations and well construction, potential well yields may range from several tens of gallons per minute to several hundred gallons per minute. An irrigation well in sec. 8, T. 8. S., R. 44 E. reportedly yielded 530 gpm with a drawdown of 40 ft.

Volcanic rocks -- Volcanic rocks border and underlie most of Sarcobatus Flat. Where brittle and fractured these rocks form productive aquifers. Volcanic-rock aquifers transmit subsurface inflow to Sarcobatus Flat from adjacent upgradient areas and transmit subsurface outflow to Death Valley.

Carbonate rocks -- Carbonate-rocks are exposed in the Grapevine Mountains south of Sarcobatus Flat. Some carbonate rocks may underlie parts of the basin fill but if present they probably are localized. Carbonate-rock aquifers transmit some regional ground-water flow to Death Valley through parts of the Grapevine Mountains.

Confining units: Fine-grained basin-fill deposits of silt and clay are interbedded with coarse-grained deposits throughout the entire site, but are most abundant in the southern part of the site. These fine grained deposits impede ground-water flow. They occur as horizontal or lenticular deposits, consequently they impede vertical movement of water more than horizontal movement. This causes the water at depth to be confined.

Source of water: The ground-water resource at the Scotty's Castle Junction Site is supplied by recharge generated within Sarcobatus Flat and by subsurface inflow from adjacent upgradient areas. Locally generated recharge is estimated to be about 1,200 ac-ft/yr and subsurface inflow from Lida Valley and Cactus Flat is estimated to be about 1,300 ac-ft/yr.

Depth to water: Depth to water ranges from less than 15 feet beneath the playa in the southern part of the site to several more than a hundred feet at the northern end of the site. A well at Scotty's Junction had a measured depth to water of 94 feet in 1961.

Direction of ground-water flow: Flow on the site in the basin fill is generally to the south toward the playa. Flow directions in the fractured rocks aquifers beneath the basin are not known but water probably flows southwest towards Death Valley.

Replenishment: There is little or no replenishment of ground water on the site. However there is about 1,200 ac-ft/yr of recharge in Sarcobatus Flat and about 1,300 ac-ft/yr of subsurface inflow from adjacent areas to the north.

#### Discharge:

Stands of greasewood -- Stands of greasewood and some rabbitbrush, saltgrass, and ryegrass form a band of vegetation that borders the playa. For the entire area of Sarcobatus Flat about 2,800 ac-ft/yr of ground water is estimated to be consumed by these plants.

Bare soil -- The area of bare soil for the entire playa is estimated to discharge several hundred ac-ft/yr by evaporation.

Subsurface outflow -- A reconnaissance study estimates about 500 ac-ft/yr of subsurface outflow from Sarcobatus Flat to Death Valley (Malmberg and Eakin, 1962). Reported spring flows in the Grapevine discharge area (Miller, 1977) suggest as much as 1,000 ac-ft/yr of subsurface outflow to Death Valley.

Pumping -- Several wells are pumped for domestic purposes in Sarcobatus Flat. Intermittent efforts to pump for irrigation have been unsuccessful, consequently the current pumpage for all of Sarcobatus Flat probably is only several tens of ac-ft/yr. There is no current pumpage on the site but several wells have been drilled and pumped in the past.



Table 5. -- Probable effects of pumping ground water at the Scottys Junction Site

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- Water levels in the vicinity of pumping wells will decline. The magnitude of the decline will vary in proportion to the magnitude of pumping. At low rates of pumping the water-level declines will be small and may be masked by changes due to natural factors such as seasonal or year-to-year fluctuations in rainfall and evapotranspiration, seasonal changes in barometric pressure, and climatic fluctuations over cycles of several years.
- The water-level declines will spread out from the pumping wells to areas where ground water is discharged by natural processes. The water-level declines will then cause discharge to decrease until the pumping is offset by reductions in natural discharge. There will be reductions in local discharge and some reduction in subsurface outflow to Death Valley. Ground-water levels will remain lowered as long as pumping is sustained.
- Discharge that will be reduced, or eliminated in localized areas includes; ground-water consumption by stands of greasewood and associated plants that border the playa in the southern part of the site, evaporation from the bare soil of the playa, and subsurface outflow to the Grapevine discharge area in Death Valley.



Table 6. -- Summary of ground-water conditions, Death Valley Junction Site

Aquifers: Basin-fill aquifers underlie the entire area to depths probably in excess of 1,000 feet. These aquifers are underlain by carbonate-rock aquifers.

Basin-fill aquifers-- These aquifers consist of deposits of sand and gravel that are interbedded with layers of silt and clay. Sands and gravels are capable of readily yielding water to wells whereas the silt and clay layers yield little or no water to wells. Depending upon specific locations and well construction, potential well yields may range from several tens of gallons per minute to several hundred gallons per minute. The southeast part of the site is adjacent to a playa and the basin-fill there may contain thick deposits of clay. Consequently, wells drilled in that part of the site may produce only small amounts of water.

Carbonate-rock aquifers -- Carbonate-rock aquifers underlie the basin-fill at this site. They transmit regional ground-water flow to Death Valley from upgradient parts of the Flow System. Water is transmitted through fractures and wells that encounter large or numerous interconnected fractures will be capable of yielding large amounts of water. However, at this site well depths would be great ( probably several thousand feet) and the chances of drilling into a zone of highly fractured rock are not known.

Confining units: Fine-grained basin-fill deposits of silt and clay are interbedded with coarse-grained deposits throughout the entire area of the site. These fine-grained deposits impede ground-water flow and are most abundant in the southeastern part of the site. They occur as horizontal or lenticular deposits, consequently they impede vertical movement of water more than horizontal movement. This causes the water at depth to be confined. Clastic sedimentary rocks and perhaps crystalline basement rocks probably underlie the carbonate-rock aquifers. These rocks do not readily transmit water and form confining units adjacent to the carbonate rock aquifers.

Source of water: Most of the ground water resource at the Death Valley Junction Site is supplied by subsurface inflow from the Flow System. Water in the basin-fill aquifers is mostly from recharge areas in Pahute Mesa and vicinity in the northern part of the Flow System. Water in the underlying carbonate-rock aquifers is mostly from recharge areas in the northeastern part of the Flow System that supply springs in Ash Meadows area as well as supporting some subsurface flow beneath the Amargosa Desert to Death Valley. Under current climate conditions flow in the Amargosa River is infrequent but during periods of flow some recharge may occur, mostly in areas north of the site.

Depth to water: Depth to water ranges from several feet in the central and eastern part of the site to several tens of feet in the southwest part of the site. At well at Death Valley Junction monitored by the U.S. Geological Survey had depths to water ranging between 3.5 and 7 feet.

Direction of ground-water flow: Flow in the basin fill is generally from higher areas north of the site toward the playa just southeast of the site.

Replenishment: There is little or no local replenishment of ground water. During wet years there is some infiltration of water from the Amargosa River during very short periods of flow. Virtually all water is supplied by subsurface inflow from areas to the north.

#### Discharge:

Sparse vegetation -- Sparse vegetation in low areas along the floodplain of the Amargosa River is supplied by shallow ground water. In addition to areas of sparse saltgrass, saltcedar and other shrubs are present. This is part of the Alkali Flat discharge area where 7,000 to 10,000 acre-ft/year of water is discharged by evapotranspiration.

Bare soil -- The area of bare soil in the southeast corner of the site is part of Alkali Flat. It is underlain by shallow ground water. Water is evaporated from areas of moist soil.

Ash Meadows -- About 17,000 acre-ft/yr is discharged by springs in Ash Meadows, about 10 miles NE of the site. This discharge supports the Ash Meadows National Wildlife Refuge.

Subsurface outflow -- Most estimates of subsurface outflow from the Amargosa Desert to Death Valley range between 3,000 and 19,000 acre-ft/yr.

Pumping -- There are several wells pumped for domestic purposes at Death Valley Junction. Also, extensive development is occurring in the Nevada part of the Amargosa Desert north and west of the site. As of 1995 total pumpage in the Amargosa Desert was reported to be slightly more than 15,000 acre-feet. If all permits and certificates to pump ground water are exercised total pumpage from the Amargosa Desert would exceed 40,000 acre-feet per year.



Table 7. -- Probable effects of pumping ground water at the Death Valley Junction Site

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- Water levels in the vicinity of pumping wells will decline. The magnitude of decline will vary in proportion to the magnitude of pumping. At low rates of pumping the water-level declines will be small and may be masked by changes due to natural factors such as seasonal or year to year fluctuations in rainfall and evapotranspiration, seasonal and daily changes in barometric pressure and climatic fluctuations over cycles of several years. Pumping from the Nevada part of the Amargosa Desert may cause changes that mask water-level declines due to local pumping.
- The water-level declines will spread out from the pumping wells to areas where ground water is discharged by natural processes. The water-level declines will then cause discharge to decrease until the reduction in natural discharge offsets the draft on the system due to pumping. However, overpumping in the Nevada part of the basin may exceed all of the discharge available to be captured by pumping and adverse impacts will occur at the Death Valley Junction site regardless of the magnitude of local pumping. If overpumping is sustained there will also be reductions in discharge in Ash Meadows and decreased subsurface outflow to the Furnace Creek discharge area in Death Valley.
- Discharge that will be reduced includes ground-water consumption by stands of sparse vegetation along the floodplain of the Amargosa River, evaporation from areas of moist bare soil in the southeast part of the site, winter seepage into channels of the Amargosa River and Carson Slough that occurs during wet years, and subsurface outflow to Death Valley. The extent to which each type of discharge will be reduced depends on the location and magnitude of pumping. If deep high-yield wells are developed from the underlying carbonate-rock aquifers, subsurface outflow to Death Valley may be reduced in preference to the other types of discharge. Heavy pumping in the Nevada part of the Amargosa Desert is expected to cause widespread water-level declines and decreased ground-water consumption by vegetation in the vicinity of Death Valley Junction. Changes associated with this pumping will be superimposed on changes caused by pumping from areas on the site. Because the effects are cumulative, consequences of overpumping from areas in Nevada will be made slightly more severe by any additional pumping from the Death Valley Junction Site.



Table 8. -- Summary of ground-water conditions, Furnace Creek Site

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Aquifers: Two aquifer types are present.

Basin-fill aquifers -- These aquifers consist of deposits of sand and gravel that make up much of the Furnace Creek alluvial fan. These materials are typically highly permeable and capable of yielding water to wells. Depending upon specific locations and well construction, potential well yields may range from several tens of gallons per minute to several hundred gallons per minute. These aquifers are present beneath much of the site between the mouth of Furnace Creek Wash and the Death Valley saltpan including the area beneath the Timbisha Village.

Carbonate Rocks -- The regional aquifer that underlies much of the eastern half of the Flow System is present beneath the western part of the site. This aquifer transmits ground-water flow to Death Valley from upgradient parts of the Flow System. Water is transmitted through fractures and wells drilled in locations where large or numerous fractures are encountered will be capable of yielding large amounts of water.

Confining units: Materials that impede ground-water flow include fine-grained basin-fill deposits of silt and clay present beneath the saltpan at the eastern margin of the site. These materials may also be interbedded with coarse-grained alluvial deposits beneath parts of the Furnace Creek alluvial fan. Clastic sedimentary rocks and perhaps crystalline basement rocks probably underlie the carbonate-rock aquifers. These rocks do not readily transmit water and form confining units adjacent to the carbonate rock aquifers.

Source of water: Virtually all of the ground water resource at the Furnace Creek Site is supplied by subsurface inflow from the Flow System. Ultimately this water originated as recharge from precipitation on upgradient parts of the Flow System in Nevada. Water in the basin-fill aquifers is supplied by subsurface leakage from the carbonate rock aquifers or by infiltration of spring discharge from the carbonate-rock aquifers.

Depth to water: Depth to water ranges from several feet or less on the saltpan at the west boundary of the site to several hundred feet in carbonate rock aquifers at the east boundary of the site. Local areas of shallow ground water also occur in the vicinity of springs in the lower part of Furnace Creek Wash.

Direction of ground-water flow: Flow is generally from high areas along the east border of the site to the west or southwest toward the saltpan at the western edge of the site.

Replenishment: There is little or no local replenishment of ground water. There is some infiltration of spring discharge in the lower reaches of Furnace Creek Wash but this is water derived from the Flow System.

Discharge:

Springs -- The Furnace Creek discharge area consist of Travertine Springs and several adjacent springs. Most discharge is in the lower reaches of Furnace Creek Wash. Flow is reported to be nearly 1200 gpm. Water from this spring and other adjacent springs is collected for use at the Furnace Creek Ranch and Furnace Creek Inn. These diversions also provide the water supply for the Timbisha Village and the Park Headquarters.

Mesquite -- Prominent stands of Mesquite occupy the lower part of the Furnace Creek fan. These plants are deep rooted and obtain their water from the shallow water table on the lower part of the alluvial fan.

Bare soil -- The area of bare soil on the site is part of the much larger Death Valley saltpan. This area is underlain by shallow ground water. Exact rates of discharge are not known but moist areas at the edge of the saltpan may discharge relatively large amounts of water. Dryer areas toward the middle of the saltpan may discharge much smaller amounts of water.

Pumping -- There is no well pumping on the site or in the vicinity of the site.



Table 9. -- Probable effects of pumping ground water at the Furnace Creek Site

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- Water levels in the vicinity of pumping wells will decline. The magnitude of decline will vary in proportion to the magnitude of pumping. At low rates of pumping the water-level declines will be small and may be masked by fluctuations changes due to natural factors such as seasonal or year to year fluctuations in rainfall and evapotranspiration, seasonal and daily changes in barometric pressure, and climatic fluctuations over cycles of several years.
- The water-level declines will spread out from the pumping wells to areas where ground water is discharged by natural processes. The water-level declines will then cause natural discharge to decrease until the change in discharge offsets the draft due to pumping.
- Discharge that will be reduced is from the Furnace Creek discharge area which includes Travertine, Texas, and Nevares Springs and associated seeps. Also included are stands of mesquite on the Furnace Creek alluvial fan, and areas of moist bare soil at the edge on the saltpan. The extent to which each type of discharge will be reduced depends on the location of pumping. Wells drilled in carbonate-rock aquifers in the eastern part of the site would most preferentially effect the discharge of the springs. Wells drilled in basin-fill aquifers on the lower part of the Furnace Creek fan would preferentially effect consumption by mesquite and evaporation from moist bare soil. All three types of discharge probably will be reduced to some extent.
- Pumping on the lower part of the Furnace Creek fan may cause saline water from beneath the saltpan to move toward the well and effect the quality of the pumped water. Wells located higher on the Furnace Creek fan will be less likely to experience this type of problem unless pumping is maintained at very high levels.



## ATTACHMENT A -- BOUNDARIES USED IN THIS REPORT

### Furnace Creek Site

The Furnace Creek Site occupies portions of the following U.S. Geological Survey 7.5 minute topographic quadrangle maps:

West of Furnace Creek Quadrangle, CA, Inyo County  
Furnace Creek Quadrangle, CA, Inyo County

The site is rectangular in shape with sides oriented in N-S and E-W directions. The west boundary corresponds with the San Bernadino Meridian; the south boundary corresponds with UTM gridline 4030000 m N; the east boundary corresponds with UTM gridline 520000 m E; and the north boundary corresponds with UTM gridline 4034000 m N.

### Death Valley Junction Site

The Death Valley Junction Site occupies portions of the following U.S. Geological Survey 7.5 minute topographic quadrangle maps:

Death Valley Junction Quadrangle, CA-NV  
West of Eagle Mtn. Quadrangle, CA, Inyo County

The site is rectangular in shape with sides oriented in N-S and E-W directions. The west boundary corresponds with UTM gridline 550000 m E; the south boundary corresponds with UTM gridline 4011000 m N; the east boundary corresponds with the boundary between Range 5 East and Range 6 E, San Bernadino Base Line and Meridian; and the north boundary corresponds with UTM gridline 4020000 m N.

### Scotty's Castle Junction Site

The Scotty's Castle Junction Site occupies portions of the following U.S. Geological Survey 7.5 minute topographic quadrangle maps:

Scottys Junction Quadrangle, NV, Nye County  
Scottys Junction SW Quadrangle, NV  
Bonnie Claire Quadrangle, NV  
Bonnie Claire NW Quadrangle, NV

The site is rectangular in shape with long sides oriented parallel to U.S. Highway 95. The east corner of the rectangle is at latitude  $37^{\circ}15'03''$  N. longitude  $117^{\circ}00'13''$  W. directly across the road (southwest) from the southeast corner of section 11, T. 8 S., R. 44 E. Mount Diablo Base Line and Meridian. The north corner is adjacent to U.S. Highway 95 about 8 miles to the northwest at latitude  $37^{\circ}20'44''$  N. longitude  $117^{\circ}05'40''$  W. It is located where the boundary between R. 43 E. and R. 44 E. crosses the highway. The west corner is on a line perpendicular to U.S. Highway 95 about 5 miles southwest of the highway at latitude  $37^{\circ}30'10''$  N.



longitude 117°09'53" W. and is situated on the Esmeralda County line. The south corner is about 8 mles to the southwest at latitude 37°12'21" N. longitude 117°04'28" W.

#### Lida Summit Site

The Lida Summit Site occupies portions of the following U.S. Geological Survey 7.5 minute topographic quadrangle maps:

- Lida Wash SW Quadrangle, NV, Esmeralda County
- Lida Wash Quadrangle, NV, Esmeralda County
- Montezuma Peak SW, Quadrangle, NV, Esmeralda County
- Sylvania Mts. Quadrangle, NV-CA
- Magruder Mtn. Quadrangle, NV, Esmeralda County
- Lida, Quadrangle, NV, Esmeralda County

The site is a polygon bounded by 5 straight line segments and one segment that follows drainage divides and geographic features.

The southeast corner of the polygon is at latitude 37°25'00" N. longitude 117°27'30" W.

Proceeding in a clockwise direction the next corner is about 7.3 miles to the southwest at an unnamed peak labeled with an elevation of 7,921 feet (this is the southernmost point on the polygon).

The next corner is about 8.7 miles to the northwest at the point where UTM gridline 4150000 m N. crosses the 8,000 foot elevation contour in the Palmetto Mountains (this is the westernmost point of the polygon).

The next corner is about 4.5 miles to the northeast at the southwest corner of T. 4 S., R. 40 E., Mount Diablo Base Line and Meridian.

The next point is about 4.9 miles due east where the southern boundary of T. 4 S., R. 40 E. crosses the topographic divide between the Clayton Valley and Lida Valley hydrographic areas (this segment forms the northernmost part of the polygon).

The next segment extends south along the drainage divide until it approaches the town of Lida. The boundary then arbitrarily passes through the southwest corner of T. 5 S., R. 41 E., parallels a dirt road (located about 200 feet south of the road) for about 1.5 miles, then turns east, crosses the road, and ends on a small ridge labeled with an elevation of 6,272 feet.

The next point is about 2.2 miles to the southeast and is the first point given in this description (latitude 37°25'00" N. longitude 117°27'30" W.).



ATTACHMENT B -- MEMOS FROM U.S. BUREAU OF LAND MANAGEMENT THAT IDENTIFY PUBLIC LANDS AT DEATH VALLEY, CA, SCOTTYS JUNCTION, NV, AND LIDA, NV THAT ARE POTENTIALLY SUITABLE FOR RESERVATIONS LANDS AS DETERMINED BY THE BUREAU OF LAND MANAGEMENT IN THE TIMBISHA SHOSHONE LAND RESERVATION STUDY.





# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Ridgecrest Resource Area  
300 South Richmond Road  
Ridgecrest, CA 93555-4436



IN REPLY REFER TO:

8100  
(CA-065.20)

MAY 12 1996

Certified Mail No. P 535 219 364  
Return Receipt Requested

Richard F. Boland, Spokesperson  
900 Toppottsi Road, Tumpisa Village  
P.O. Box 206  
Death Valley, CA 92328

Dear Mr. Boland:

Enclosed are three maps and a report which identify approximately 5,800 acres of public lands at Scottys Junction and Lida, Nevada that are potentially suitable for reservation lands, as determined by the Bureau of Land Management (BLM) in the Timbisha Shoshone Land Reservation Study. On May 2, I sent you a map and a report describing the potentially suitable parcel at Death Valley Junction, California. Once you have had a chance to review these documents, I would be happy to discuss them with you and the National Park Service. Please contact me if you have any questions.

Within 30 days of receipt of this letter, I would appreciate your feedback on the lands identified as potentially suitable in the three parcels. We want to continue to move forward towards completing the final report for the Land Reservation Study.

Sincerely,

*Greg Thomsen*

Greg Thomsen  
Resources Staff Chief

Enclosures

cc: Ray Murray  
National Park Service



Specific areas within these areas, that is, legal descriptions of lands identified on the draft map are as follows:

T5S R40E,

Sec. 25 all (Lida, Nev)

Sec. 26 all (Magruder Mt, Nev.)

Sec. 35 NE1/4, (Magruder Mt, Nev.)

N1/2 NW1/4,  
SE1/4 NW1/4,  
SW1/4

Sec. 36 Lots 1-3, (Lida, Nev)

NE1/4,  
N1/2 NW1/4,  
SE1/4 NW1/4,

T6S R40E,

Sec. 2 Lots 3 & 4, (Magruder Mt, Nev.)

S1/2 N1/2,  
S1/2

Sec. 3 All (Magruder Mt, Nev.)

T7S R44E

(Scotty's Junction, Nev.)

Sec. 21 NE1/4,  
SW1/4 SW1/4

Sec. 27 all

Sec. 29 W1/2

Sec. 32 All

Sec. 33

NE1/4 NE1/4 NE1/4 S1/2 NW1/4 NE1/4 NE1/4  
N1/2 SW1/4 NE1/4 NE1/4  
N1/2 SE1/4 NE1/4 NE1/4  
SW1/4 NE1/4  
NW1/4 NE1/4  
SE1/4 NE1/4



NE1/4 NE1/4 SE1/4  
NW1/4 NE1/4 SE1/4  
SW1/4 NE1/4 SE1/4  
W1/2 SE1/4 NE1/4 SE1/4  
NW1/4 SE1/4  
S1/2 SE1/4

Sec. 34 NE1/2

T8S R44E

Sec. 2 NE1/4,  
SE1/4

Sec. 3  
E1/2  
SW1/4



**Preliminary Analysis for Timblsha Land Reservation Study:  
Lands Identified as Potentially Suitable for Disposal Within the Battle Mountain  
District, Tonopah Resource Area of Nevada.**

Under the directives of the Desert Protection Act of 1994, Section 705 (b), relevant federal agencies, including The Bureau of Land Management, Nevada State Office and Tonopah Field Offices, in consultation with the Tribe, have identified a combined acreage of approximately 5800 acres of public land near Scotty's Junction and Lida, Nevada, that have been preliminarily determined to be suitable for disposal. The acreage was identified in the Draft Proposed Tonopah Resource Management Plan and although this document is presently under review it has not been finalized.

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All of the lands identified are managed by the Tonopah Field Office, located within the Battle Mountain District in Nevada. The availability of such amenities as water, roads, access and power are beyond the scope of the Draft Resource Management Plan and should be addressed prior to considerations of disposal. Resource issues such as Wilderness Areas, Wilderness Study Areas, Threatened and Endangered Species and habitats, and Wild Horse and Burro Herd Management Areas were addressed in the Draft Proposed Tonopah Resource Management Plan document and, therefore, are excluded from consideration in this presentation. Finally, a BIA Land Assessment will be conducted on the public land parcels identified through these efforts prior to lands being warranted as acceptable for reservation designation.

Lands identified as potentially available are supported by information from the District Master Title Plats which contain information about mining activity, mining patents, Recreation and Public Purpose leases, private lands, and state and federal lands not managed by the BLM. These records are generally accurate, however, that information may not reflect changes which have transpired within the last year. A computer generated map, to be included in the Final Land Suitability Report, is presently being developed and will reflect the information contained here as well as the most recent information available through Global Positioning System (GIS) technology.

**Legend**

The lands identified as potentially suitable for disposal are shaded in blue on the black and white 7.5 Minute Series topographic maps. For reference, each 7.5 minute map is labeled on the 1:100,000 Scale Series Last Chance Range, Cal-Nev. Surface Minerals Management Status Map as an area outlined in red and labeled with its corresponding map.

Lands identified in the document at Appendix 16 (Pg. A-36) are located within:

**Lida, NV**

T5 S., R40 E. sec. 25, 26, 35 36.

T6 S., R40 E.. sec. 2, 3.

**Scotty's Junction**

T7 S., R44 E., Sec. 21, 27\*, 29. 32-34

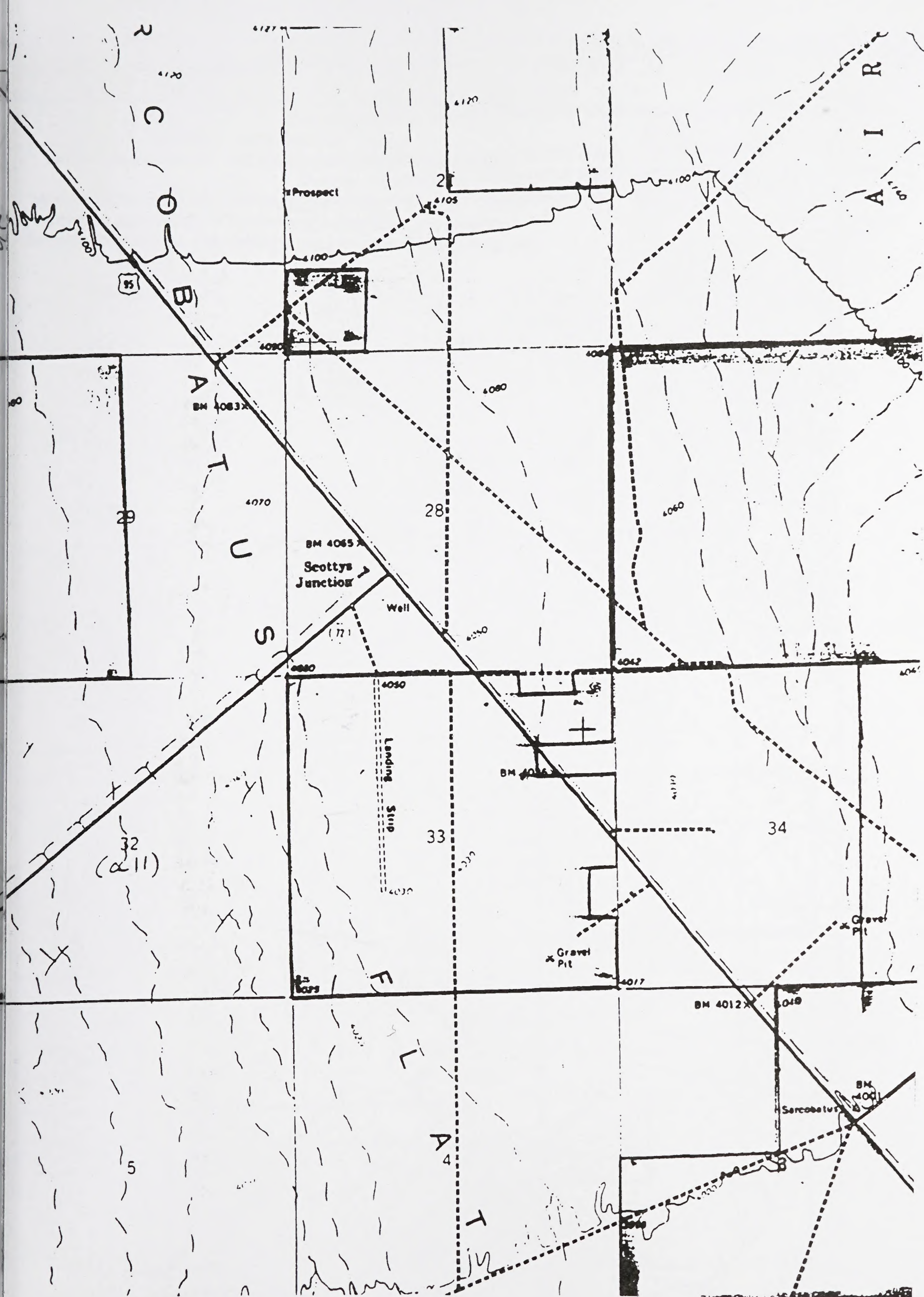
T8 S., R 44E., Sec 2, 3



Note: The information provided on this map is for reference only and may not accurately represent the actual acreage of lands managed by the Bureau of Land Management, available for disposal.

This topographic map depicts the Scotts Junction area in Utah. The map is characterized by a grid of land parcels, some of which are numbered (e.g., 28, 32, 33, 34). A prominent road, likely Highway 89, runs diagonally from the bottom left towards the top right. Another road, labeled 'Prospect', runs horizontally across the upper middle section. The map includes various geographical features such as 'Scottys Junction', a 'Well', a 'Landing Strip', and a 'Gravel Pit'. Elevation contours are shown with dashed lines and numerical values (e.g., 4000, 4020, 4040, 4060, 4080, 4100, 4120, 4140). Benchmarks are marked with 'BM' and numbers (e.g., BM 4083, BM 4085, BM 4086, BM 4087). The map also shows a 'Gravel Pit' and a 'Gravel Pile'. The text 'S A R C O B A T U S' is written vertically along the left side, and 'A I R' is written vertically along the right side. The map is a black and white reproduction of a physical map.







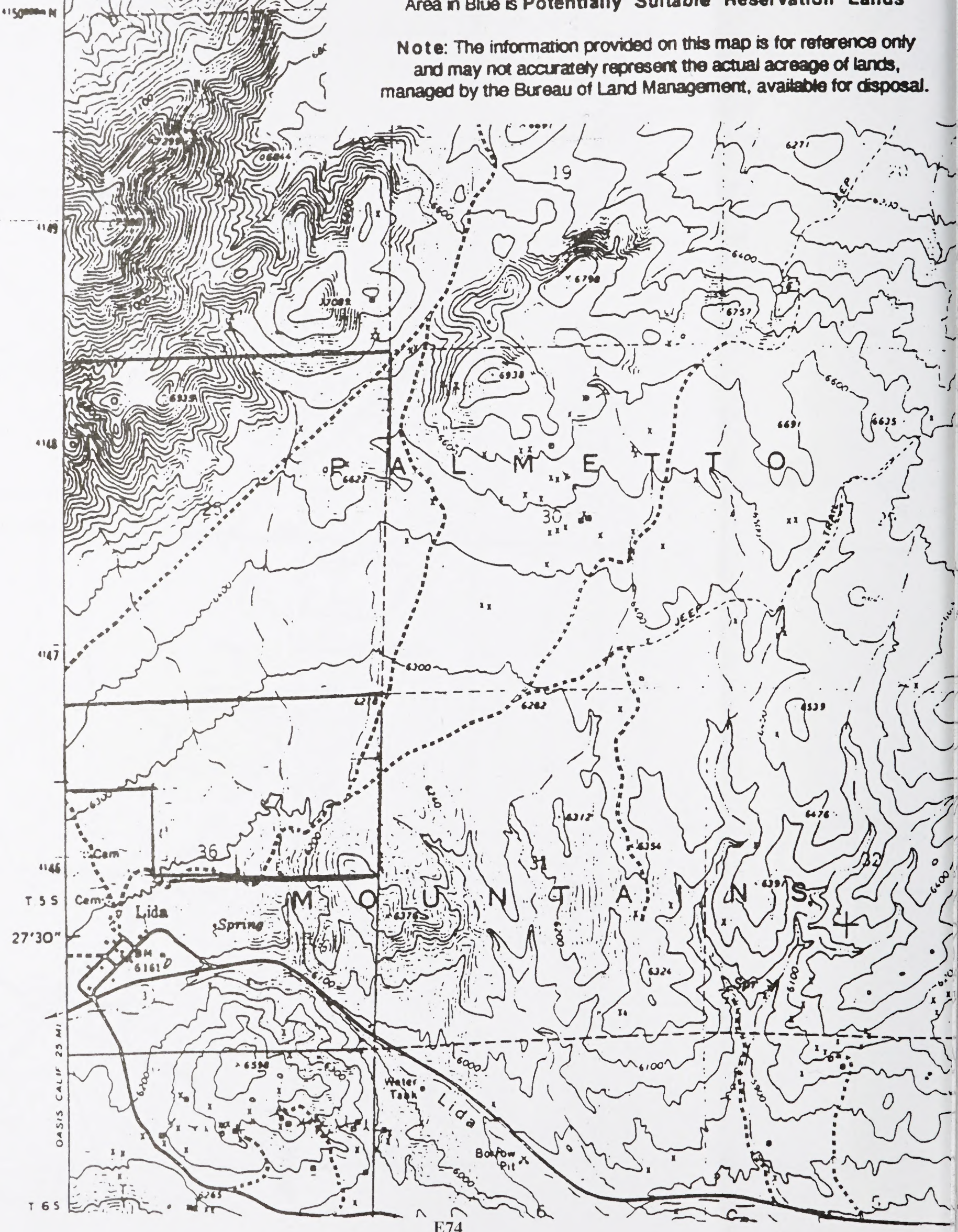
DEPARTMENT OF THE INTERIOR  
GEOLOGICAL SURVEY

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Lida, Nevada Map - 1:24,000

Area in Blue is Potentially Suitable Reservation Lands

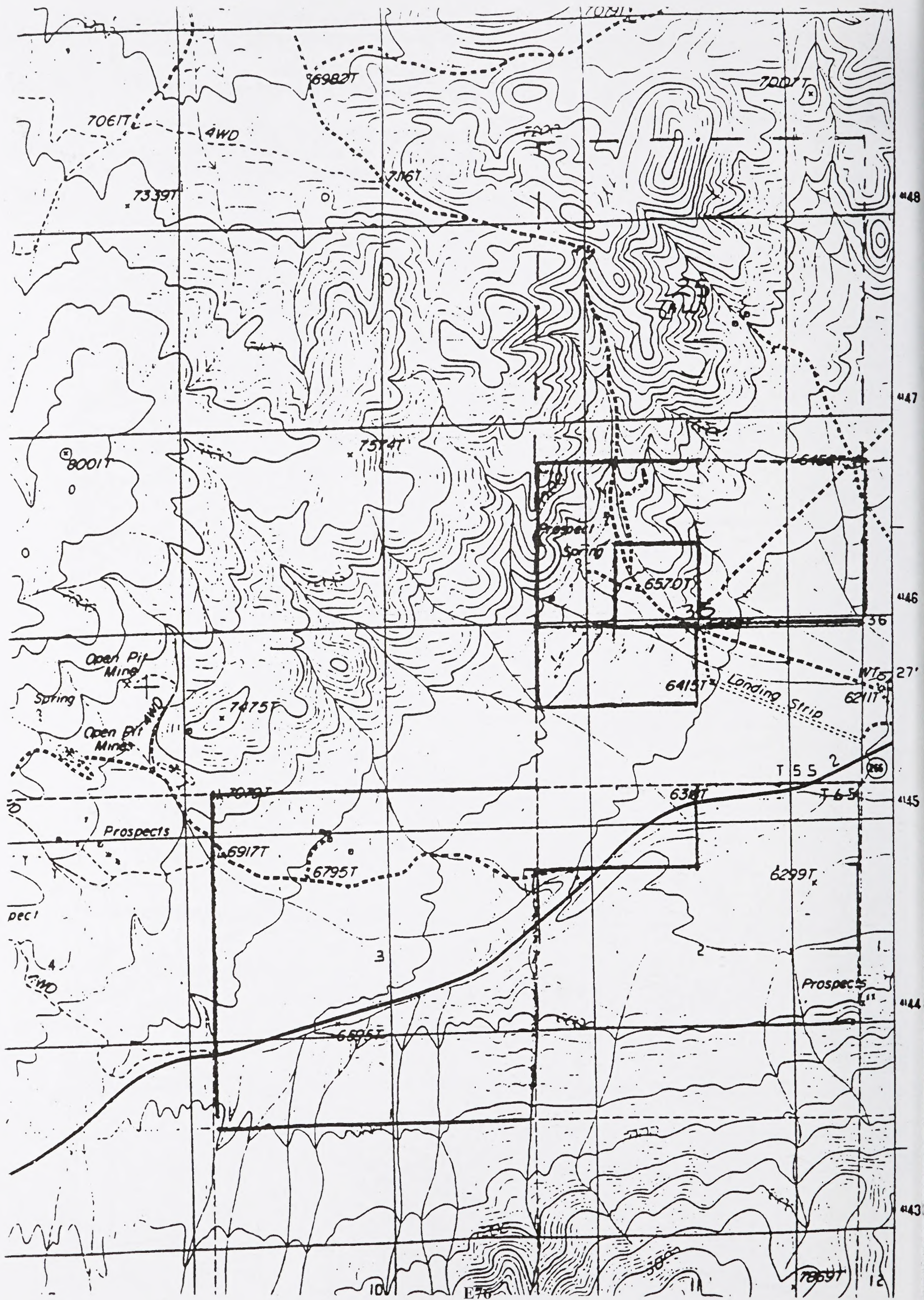
Note: The information provided on this map is for reference only  
and may not accurately represent the actual acreage of lands,  
managed by the Bureau of Land Management, available for disposal.











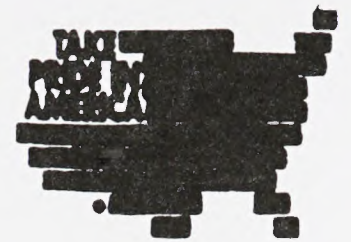




# United States Department of the Interior

## BUREAU OF LAND MANAGEMENT

Ridgecrest Resource Area  
300 South Richmond Road  
Ridgecrest, CA 93555-4436



IN REPLY REFER TO:

8100

(CA-065.20)

MAY 02 1996

Richard F. Boland, Spokesperson  
900 Toppottsi Road, Tumpisa Village  
P.O. Box 206  
Death Valley, CA 92328

Dear Mr. Boland:

Enclosed is a map and report which identify approximately 5,400 acres of public lands at Death Valley Junction that are potentially suitable for reservation lands, as determined by the Bureau of Land Management (BLM) in the Timbisha Shoshone Land Reservation Study. I expect next week to send you a similar package on the parcels at Scotty's Junction and Lida. Cynthia Pinto and I decided she should rework them to make them more consistent with the format in the enclosed. I am sending this to you in response to your request at the March 7, 1996, meeting in Death Valley National Park. Once you have received the reports and maps on all three parcels, I would be happy to sit down with you and the National Park Service to discuss them. Please contact me if you have any questions.

Sincerely,

*Greg Thomsen*

Greg Thomsen  
Resources Staff Chief

Enclosures

cc: Ray Murray  
National Park Service



TIMBISHA TRIBE LAND RESERVATION STUDY  
PRELIMINARY ANALYSIS - LAND AND RESOURCES STATUS  
DEATH VALLEY JUNCTION AREA, CALIFORNIA

Introduction

The Timbisha Tribe of Shoshone Indians have identified approximately 13,800 acres of public land in the Death Valley Junction area of California that is of interest to them for future tourism and economic development. Their interest in this area was expressed to field managers from the Bureau of Land Management, National Park Service and Bureau of Indian Affairs under a process developed for implementing Section 705 (b) of the California Desert Protection Act of 1994. The area of interest, as shown on the enclosed land status map also includes 280 acres of private lands at the community of Death Valley Junction and 1,280 acres of State of California lands administered by the State Lands Commission (SLC).

Approximately 5,400 acres of public land within the 13,800 area of interest will be identified as a potentially suitable land reservation area by the Bureau based on consideration of land status, location, existing encumbrances and resource values. The tribe has indicated that approximately 5,000 acres within the larger area of interest would be satisfactory in meeting their tribal needs in this area.

Legal Description of Public Lands of Interest to the Tribe

The 13,800 acres of public land in the Death Valley Junction area of interest to the tribe is legally described as follows:

San Bernardino Meridian, California

T.25 N., R. 5 E.

Sec. 1,	All;
Sec. 2,	All;
Sec. 3,	All;
Sec. 4,	All;
Sec. 9,	All;
Sec.10,	All;
Sec.11,	All;
Sec.12,	All;
Sec.13,	All;
Sec.14,	NE¼, NW¼, and SE¼;
Sec.15,	All;
Sec.21,	All;



Sec.22, All;  
 Sec.23, NE¼NE¼, S¼NW¼, and SE¼;  
 Sec.24, All;  
 Sec.25, All;  
 Sec.26, All;  
 Sec.27, All;  
 Sec.28, All;  
 Sec.33, All;  
 Sec.34, All;  
 Sec.35, All;

### Land Status and Authorizations

The land area of interest is entirely within the California Desert Conservation Area and is managed under the land use decisions of the California Desert Conservation Area Plan (1980), as amended. All the above described lands are within Multiple Use Class L (limited), except for Sections 28 and 33 which are Multiple Use Class M (moderate). All the lands are classified for multiple use under R 1250 (copy enclosed).

No Wilderness or Wilderness Study Areas are present, and no lands within Death Valley National Park are involved.

Two paved highways are present within the land area of interest; State Route 127, and State Route 190, both of which are maintained by the State of California.

The following rights-of-way of record are present:

R	4275	Tonopah and Tidewater Railroad
R	2570	Highway
R0	1247	Transmission Line and Substation
I	07263	Death Valley Railroad Station Grounds
S	031950	California Dept. of Transportation, Fed. Aid Highway
LA	092906	Pacific Bell, Transmission Line
LA	0139885	California Dept. of Transportation, Fed. Aid Highway

There are 84 mining unpatented claims of record on public lands within the area of interest. There is a relatively even distribution of claims in the area, although the areas northwest and due south of the community of Death Valley Junction are the least affected. There are currently no active mining plans of operation or mining operations on any of the claims in the area of interest.



### Resource Values

Existing data shows very low potential for the occurrence of paleontological resources anywhere in the area. Cultural resource information, based on the California Desert plan sampling transects, show probable numerous prehistoric sites in the area northeast of Death Valley Junction, likely in association with the Amargosa River corridor. Historic sites (railroad station grounds, dumps) are known in the immediate Death Valley Junction area, as well as an historic rail line (abandoned) and telegraph/telephone line to the north and south.

There are no known Federally listed plants or animals or their habitat within the area of interest. There are records of occurrence or potential occurrence of some sensitive species (Ash meadows gumplant, Amargosa nitrophila, Nelson's bighorn sheep, Death Valley agabus diving beetle) in the general area but not within the land area of interest.

The study area is part of the Chicago Valley Herd Management Area for horses and burros. The entire herd land area is over 100,000 acres in size and has a maximum approved animal population of 28 horses and 28 burros. The 5,400 acre land area proposed for further consideration is rarely visited by horses in the herd area, and no burros have been sighted in the area in the last several years. There are no expected adverse effects to the viability of the horse and burros nor the herd management area if the land were transferred out of public ownership.

Water available for supporting a commercial or residential development in the area is probably limited due to water quality, and environmental concerns associated with possible overdraft of groundwater in the Amargosa Desert and the necessity of protecting the water resources of the Amargosa River, the springs and seeps in Ash Meadows National Wildlife Refuge and those associated with Death Valley National Park.

There are no other known resource values of concern in the area.

### Areas Recommended for Further Consideration

Based on the available information on existing encumbrances, uses, resource values, and stated tribal need for lands suitable for economic/tourism facility development, two areas aggregating approximately 5,400 acres are recommended for further review. These two areas are shown in yellow on the enclosed topographic quadrangle and are described below:

Area Northwest of Death Valley Junction (approx. 3,000 acres)



San Bernardino Meridian, California

T.25 N., R. 5 E.

Sec. 3, west of Route 127  
Sec. 4, All  
Sec. 9, All  
Sec. 10, west of Route 127  
Sec. 14, west of Route 127  
Sec. 15, All (Route 190 bisects)

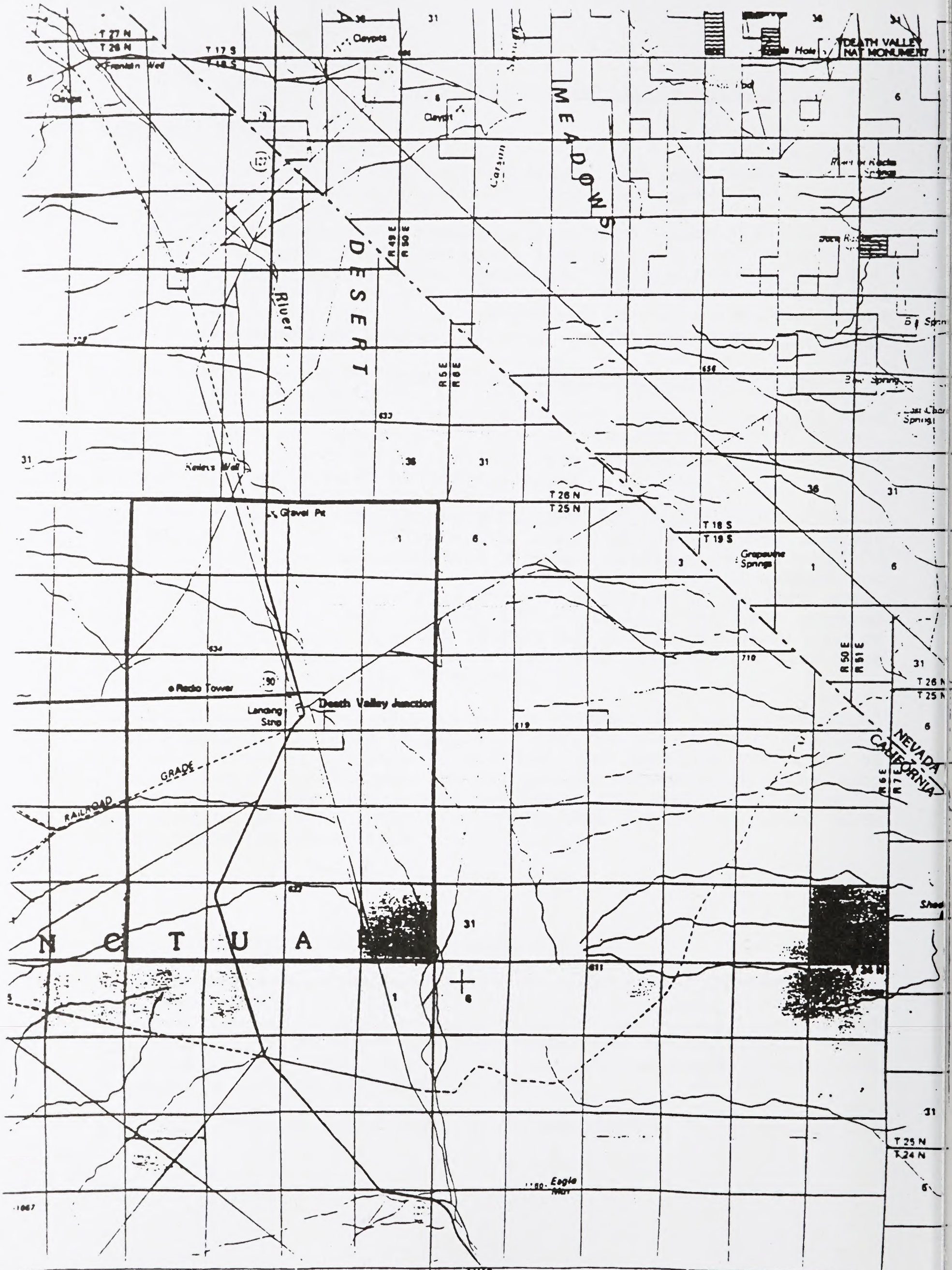
Area South of Death Valley Junction (approx. 2,400 acres)

San Bernardino Meridian, California

T.25 N., R. 5 E.

Sec. 22, east of Route 127  
Sec. 23, west of railroad right-of-way  
Sec. 26, west of railroad right-of-way  
Sec. 27, east of Route 127  
Sec. 34, east of Route 127  
Sec. 35, west of railroad right-of-way







ATTACHMENT C -- RESUME AND PERSONAL INFORMATION FOR  
JAMES R. HARRILL  
-----

Current Employment:

Employed by Pal Consultants Inc. as a hydrologist.

Current Residence:

608 Highland Street  
Carson City, NV 89703

Education:

BA degree from Johns Hopkins University in 1960 with major in geology.

MS degree from University of Utah in 1962 with major in geology.

One year of post-graduate study at Utah State University as part of the U.S. Geological Survey training program (1970-71 academic year). Took courses in hydrology, computer science, and statistics.

Work Experience:

- 1956-59 -- Spent three summers working as a student aid for the U.S. Bureau of Mines in Spokane Washington. Primary duty was to assist engineers in the surveying of mineral prospects in Washington, Idaho, and Montana.
- 1961-62 -- Worked part time for Beryllium Resources Inc. as a draftsman while attending University of Utah.
- 1964-94 -- Worked for U.S. Geological Survey at their District Office in Carson City, Nevada. During this 30-year period conducted hydrologic studies in numerous areas throughout Nevada. Produced more than 40 published reports that are listed in the attached bibliography. I also held several key management and supervisory positions during the latter part of this period. Studies related to selected areas and the management and supervisory positions are listed below:

Was project leader for studies of the effects of ground-water development in Diamond Valley, Hualapai Flat, Paradise Valley, Las Vegas Valley, and Pahrump Valley.

Developed ground-water flow models for Las Vegas Valley, Pahrump Valley, and Stagecoach Valley. I was 2nd author of a regional-scale ground-water flow model of the carbonate-rock province of the Great Basin in Nevada, Utah, and adjacent states.



Was in charge of the studies section of the Nevada District Office for a total of about 5 years. Supervised project leaders and was responsible for the development and conduct of project studies undertaken by the Nevada District Office.

From 1980-85 was project manager of the Great Basin Regional Aquifer Systems Analysis study. This was one of a series of regional-scale studies undertaken by the Geological Survey to evaluate ground-water flow systems at a large scale. Our study area included the Great Basin area of Nevada, Utah, and adjacent states. This project has produced about 60 report products and at its peak employed about 15 persons from the Nevada and Utah District Offices.

From 1985-89 was the project manager of the Southern Nevada Carbonate Aquifers study. This was a multi-agency study that required coordination between the U.S. Geological Survey, the Desert Research Institute, the U.S. Bureau of Reclamation, the Las Vegas Valley Water District, and an oversight committee appointed by the Nevada State Legislature. It has produced about 30 report products and at its peak involved about 20 employees from the several agencies listed above.

From 1990-94 was Nevada District Ground-Water Discipline Specialist. Was responsible to the District Chief for the overall technical adequacy of all ground-water related work performed by the Nevada District. This included development of programs and projects, technical oversight and review of projects, and technical review of all ground-water related report products. Was also involved in coordination with other Federal agencies regarding ground-water related issues.

Retired from the U.S. Geological Survey May, 1994.

- 1994-present -- Employed on part-time basis by Pal Consultants Inc. Principal assignment has been the development of a conceptual model of the Death Valley ground-water flow system for the National Park Service.



ATTACHMENT D -- PUBLISHED REPORTS BY JAMES R. HARRILL

June, 1997

-----

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Purtyman, W.D., Harrill, J.R., and Rush, F.E., 1969, Geologic data for U20U satellite holes #1, #2, #3, and #4 and studies of the orientation of joints in the Thirsty Canyon Tuff, Area 20, Pahute Mesa, Nevada Test Site: U.S. Geological Survey Open-File Report, 19 p.

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**WETLAND AND RIPARIAN RESOURCES OF  
DEATH VALLEY NATIONAL PARK  
AND THEIR SUSCEPTIBILITY TO  
WATER DIVERSION ACTIVITIES**

by

**DOUGLAS L. THRELOFF  
RESOURCES MANAGEMENT DIVISION  
DEATH VALLEY NATIONAL PARK  
DEATH VALLEY, CALIFORNIA**

**APRIL 1998**





# WETLAND AND RIPARIAN RESOURCES OF DEATH VALLEY NATIONAL PARK AND THEIR SUSCEPTIBILITY TO WATER DIVERSION ACTIVITIES

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# **WETLAND AND RIPARIAN RESOURCES OF DEATH VALLEY NATIONAL PARK AND THEIR SUSCEPTIBILITY TO WATER DIVERSION ACTIVITIES**

## **FOREWORD**

The audience for this paper is meant to include senior managers in the San Francisco and Washington D.C. offices of the National Park Service. Individuals in both locations will be involved in critical decisions that involve the protection of resources in Death Valley National Park. This paper provides an overview for wetland and riparian resources in that Park, and describes some of the threats that have the potential to degrade or diminish water dependent habitats and species. Key issues and concepts are contained in the executive summary and management implications sections, and are developed in greater detail throughout the rest of the report.

## **EXECUTIVE SUMMARY**

Wetland and riparian areas are two of the rarest and most biologically diverse habitat types in the Mohave Desert. Many of the springs, streams, and marshes in this area are increasingly being developed to support human activities. As these habitats are altered, many plant and animal communities are being adversely impacted.

Much of the water which is being used to support commercial, municipal, and residential growth in the area east of Death Valley National Park is being withdrawn by ground water pumping. This pumping has the cumulative potential for impacting spring discharge rates and biotic communities inside the Park. This cause-effect relationship exists because several of the larger Death Valley springs derive their water from a regional aquifer which extends as far east as southern Nevada and Utah.

The value of wetland and riparian areas in the Park is particularly important because they 1) are rare in the desert landscape, 2) are rich areas of biodiversity and possess numerous water dependent species groups, 3) contain numerous endangered, threatened and sensitive/endemic species, 4) offer unique scientific opportunities for studies which involve species evolution and the connection of ancient surface waters, and 5) have increased in value as similar habitats are degraded or modified outside the Park.

Substantially reduced spring flows in the Park would impact as many as 58 species that have limited distributions or are listed as endangered/threatened. The diversity of these water dependent organisms is broad based, and includes several mammal, fish, amphibian, bird, mollusk, aquatic invertebrate, and plant species. Distribution of many of these species is limited



to a few spring discharge areas that derive their water from the regional aquifer. These sites include Devils Hole, the Travertine/Nevares/Texas Springs complex, the Grapevine/Staininger/Surprise Springs complex, Keane Wonder Springs, the Saratoga/Valley Springs area, and the Death Valley playa/Amargosa River delta. Many of the unique or sensitive species in the Park only exist at one spring or spring complex. This limited distribution pattern makes several of the species vulnerable to population declines if habitat losses occur.

Water diversion activities can affect biological organisms through a variety of mechanisms. Plant and animal water requirements result from physiological, behavioral, and ecological adaptations. In most, if not all cases, these adaptive strategies leave individual species vulnerable to population declines or extinction because organisms have a finite ability to cope with reduced water availability. Water losses also have the potential to have broad based impacts as water diversion activities ripple through plant and animal communities.

The scientific understanding of wetland and riparian systems is quickly increasing and indicates that larger habitats support more diverse floras and faunas. New research has also shown that incremental reductions in habitat result in quantifiable biological impacts. The recent discovery of several new species in the Park suggests that as springs are more carefully studied, additional taxa will be recognized, and the scientific value of wetlands will further increase.

Case history studies for water dependent habitats in the Pahrump and Las Vegas Valleys and for the endangered Devils Hole pupfish are provided. In both cases, environmental impacts occurred as ground water and surface water diversions were made. The Devils Hole pupfish has been shown to respond to relatively small ground water declines. In the 1970's, the fish nearly became extinct as ground water pumping activities effected the local water table. Wetland habitats at several springs in the Las Vegas and Pahrump Valleys have been completely altered or lost as a result of development. The reduction or elimination of surface water in these areas has had a dramatic and permanent impact on spring biota. Three fish and one amphibian species have recently become extinct in these two valleys, and springs with discharges as high as 3,300 gallons per minute have been completely eliminated.

Federal guidance relating to wetland protection and preservation is described. Much of this material was developed in response to the loss and degradation of water dependent habitats in the United States. Because the Endangered Species Act applies to every federal project and expenditure, and because the endangered Devils Hole pupfish exists within the boundary of Death Valley National Park, the National Park Service has a responsibility to review and mitigate any federal project which has the potential to affect this species or its habitat. The Service also has a mandate to manage its wetland and riparian resources for their preservation in perpetuity.

Death Valley National Park staff are only marginally prepared to respond to the challenges of protecting the Park's water dependent resources at the present time. This condition is primarily a function of information and budget deficiencies. Protection of these unique resources strongly



suggests that a proactive and comprehensive strategy for addressing impacts that originate outside the Park boundary will be required. The effort to protect the Park's habitats and species will also require that senior management staff fully support data collection efforts, as well as legal or administrative activities which are designed to ensure that external pumping activities do not affect in-Park resources.

## INTRODUCTION

Wetland and riparian areas are two of the rarest and most biologically diverse habitat types in the Mohave Desert. This generalization is based on the fact that 1) the presence of surface water infrequently occurs in an environment where rainfall levels on the valley floors rarely exceed five inches per year, and 2) many plant and animal species have physiological or life history traits which force them to reside in or directly adjacent to permanent sources of water.

The biological importance of stable and permanent water sources is particularly apparent in the vicinity of Death Valley National Park along the border of California and Nevada (Map 1). Infrequent lush oases which exist in the Park as a result of spring discharge water are in obvious contrast to the dry, often barren landscapes immediately adjacent to wetland habitats. Even the casual observer can not help but notice that plant cover and animal activity is dramatically greater in these rare desert "islands".

Unlike many locations across the Mohave Desert, many of the water dependent Death Valley habitats possess a diversity of plant and animal species that are not found anywhere else in the world. The existence of these species is due largely to a unique geologic history and the process of evolution that has progressed in habitats that have been isolated from one another since the Pleistocene epoch.

The same water sources that create habitat for plants and animals also tend to attract and promote human developments. Many of the larger cities and towns in the desert are experiencing significant growth. Since the region does not possess abundant surface water, much of the growth depends on the exploitation of ground water. As the water demands that are associated with industry and growing populations increase, impacts to ground water tables and spring discharges typically occur. Such activity has the potential to impact biological features that also rely on the same finite water supply.

Sustainable human use of local ground water resources will require a clear understanding of which biological resources could be impacted by water losses, and how these resources are affected by hydrologic changes. This paper attempts to consolidate information that addresses both of these needs by:



- providing a summary narrative on the hydrologic characteristics of the regional aquifer which supplies water to the major springs in Death Valley National Park
- describing local anthropogenic uses of ground water which support commercial, industrial, agricultural, and municipal demands
- providing a list of the unique or significant water dependent biological species in many of the larger springs in Death Valley National Park
- providing general habitat descriptions for the primary discharge points which are fed by the regional aquifer
- highlighting the unique value of the wetland/riparian plant and animal communities in desert landscapes in general, and in Death Valley in particular
- describing the physiological/life history traits which make wetland dependent species vulnerable to changes in reduced spring discharges or lowered ground water tables
- providing case history examples of how the integrity of some desert wetlands systems/species have been degraded by human activities

The broad nature of this document precludes a detailed discussion for each of these topics. It is the author's hope, however, that this document can provide an overview for some of the key issues that are associated with habitats which could be affected by water use in and adjacent to Death Valley National Park. This document does not address water dependent resources in other wetlands such as Cottonball Marsh, Salt Creek, or Saline Valley, since these areas are not currently known to be influenced by water withdrawals from the regional aquifer. Scientific names for species which are discussed in this paper appear in Appendix D.



Map 1. Location of Death Valley National Park along the California/Nevada border.



## REGIONAL HYDROLOGY OF THE DEATH VALLEY

### GROUND WATER FLOW SYSTEM

Principal springs along the eastern side of Death Valley National Park are fed by a regional carbonate rock ground water flow system. The size of this flow system is relatively large and includes 15,800 square miles in southern Nevada and California (PAL 1997). This same aquifer also supplies the majority of water for springs in the Ash Meadows National Wildlife Refuge area east of the Park boundary (Map 2). At least a portion of the water from the carbonate rock and associated valley fill aquifer(s) also is the source of ground water that feeds the Death Valley playa. This portion of the paper only highlights some of the pertinent attributes that are associated with the regional hydrology. Numerous references provide detailed narratives on the extent and characteristics of the flow system (Winograd and Thordarson 1975, Harrill et. al. 1988, Bedinger et. al. 1989, D'Agnese 1994).

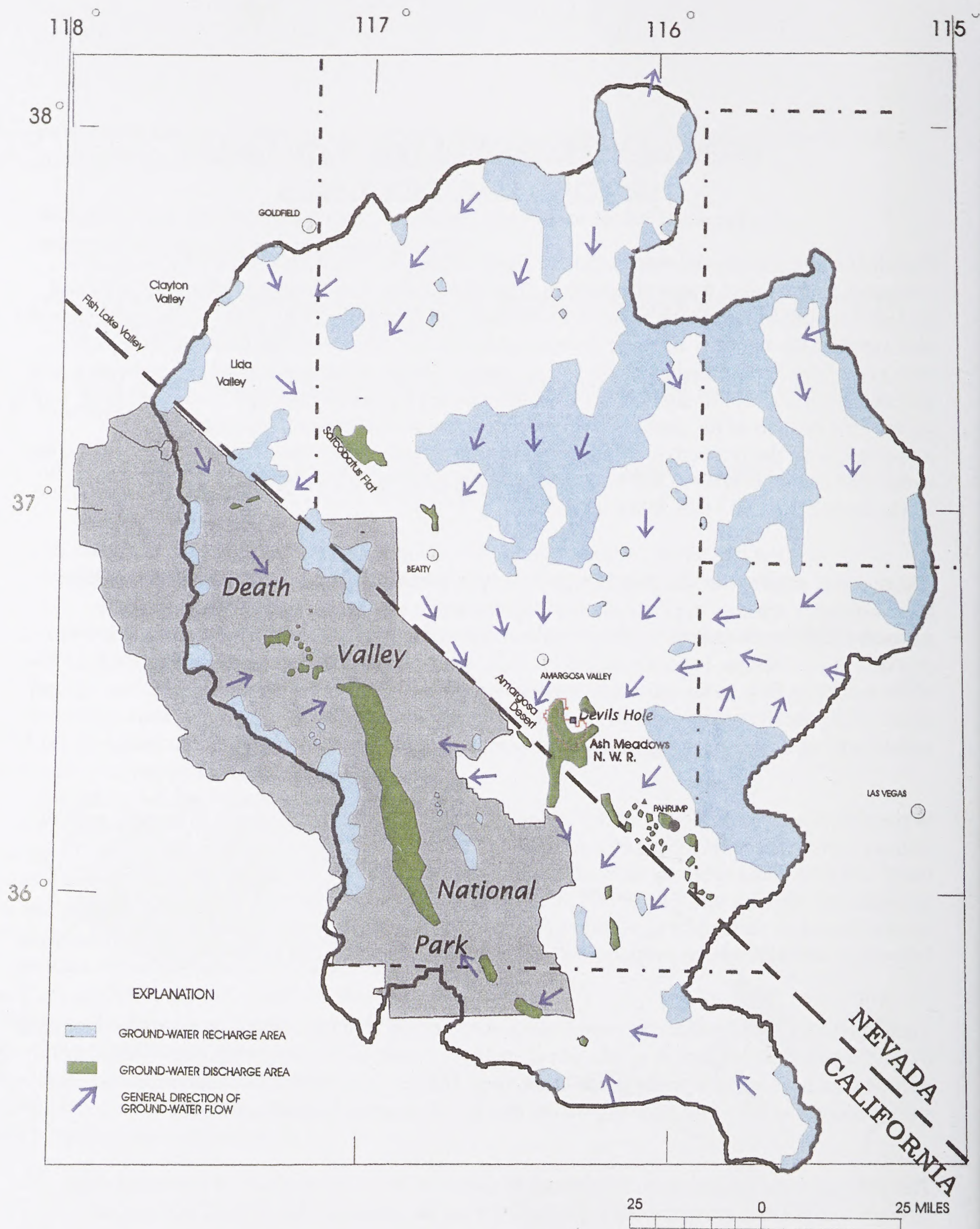
The regional aquifer derives its recharge from precipitation that falls in the higher elevation, more northerly areas of the flow system. Ground water movement through the aquifer is generally from north to south through fractured limestone and volcanic rocks or thick alluvial deposits in the valleys. In south central Nevada, the aquifer is believed to bifurcate. At least one of the resulting flow paths ultimately terminates at the Death Valley playa. The full extent and depth of the aquifer system is unknown, and the complexity of the geology precludes a detailed understanding of the mechanics of water movement at the present time.

Water that passes through the aquifer and ultimately comes to the surface is expressed as point sources (springs or seeps) or as broad, diffuse discharge areas (playa or alkali-encrusted salt flats). Local wetland areas are subject to high rates of water loss through evaporation or plant transpiration (Dudley and Larson 1976). Maintenance of local wetlands during the summer months therefore require large volumes of water when summer temperatures exceed 105° Fahrenheit and annual pan evaporation rates are on the order of 100 inches per year.

Recharge to the aquifer at the present time is very limited. This fact is due to the relatively recent (<15,000 years) development of a desert climate (Grayson 1993). As precipitation rates have declined, so have surface water percolation rates. Hence, the majority of water which issues at spring sources is the result of precipitation that fell thousands of years ago.

Travel times from up-gradient recharge areas (mountains) to down-gradient discharge areas (springs and playas) are generally believed to be on the order of thousands, if not tens of thousands of years (Mr. Doug Bedinger, pers. comm.). Conversely, the time response of individual ground water basins to pumping activities is much more rapid. These two factors combine in such a way as to suggest that while ground water storage capacities can be depleted in a relatively short period, long periods of time are necessary for replacement water to move in from unaffected up-gradient areas.





Map 2. Ground water recharge areas, ground water discharge areas, and general directions of ground water movement for the Death Valley flow system. Reproduced from PAL (1997).



## **HUMAN RELIANCE ON GROUND WATER**

Because human developments in the desert are reliant on substantial volumes of water, large-scale ground water pumping activities have been initiated in numerous areas in order to meet commercial, municipal, and agricultural needs (Map 3). Such activities cumulatively have the potential to deplete aquifer capacities and reduce spring discharge rates. Reduced spring flows in turn have the potential to impact biological features that also rely on a finite supply of water.

Several cities within the boundary of the regional ground water flow system are currently experiencing some of the fastest growth rates of any place in the United States. Notable examples within a 100-mile radius of Death Valley National Park include Las Vegas and Pahrump, Nevada. In the case of Las Vegas, the local Chamber of Commerce estimates that 6,000 people are moving to the city every month. Between 1985 and 1995, the population of the Las Vegas Valley increased from 550,700 to 1,138,800.

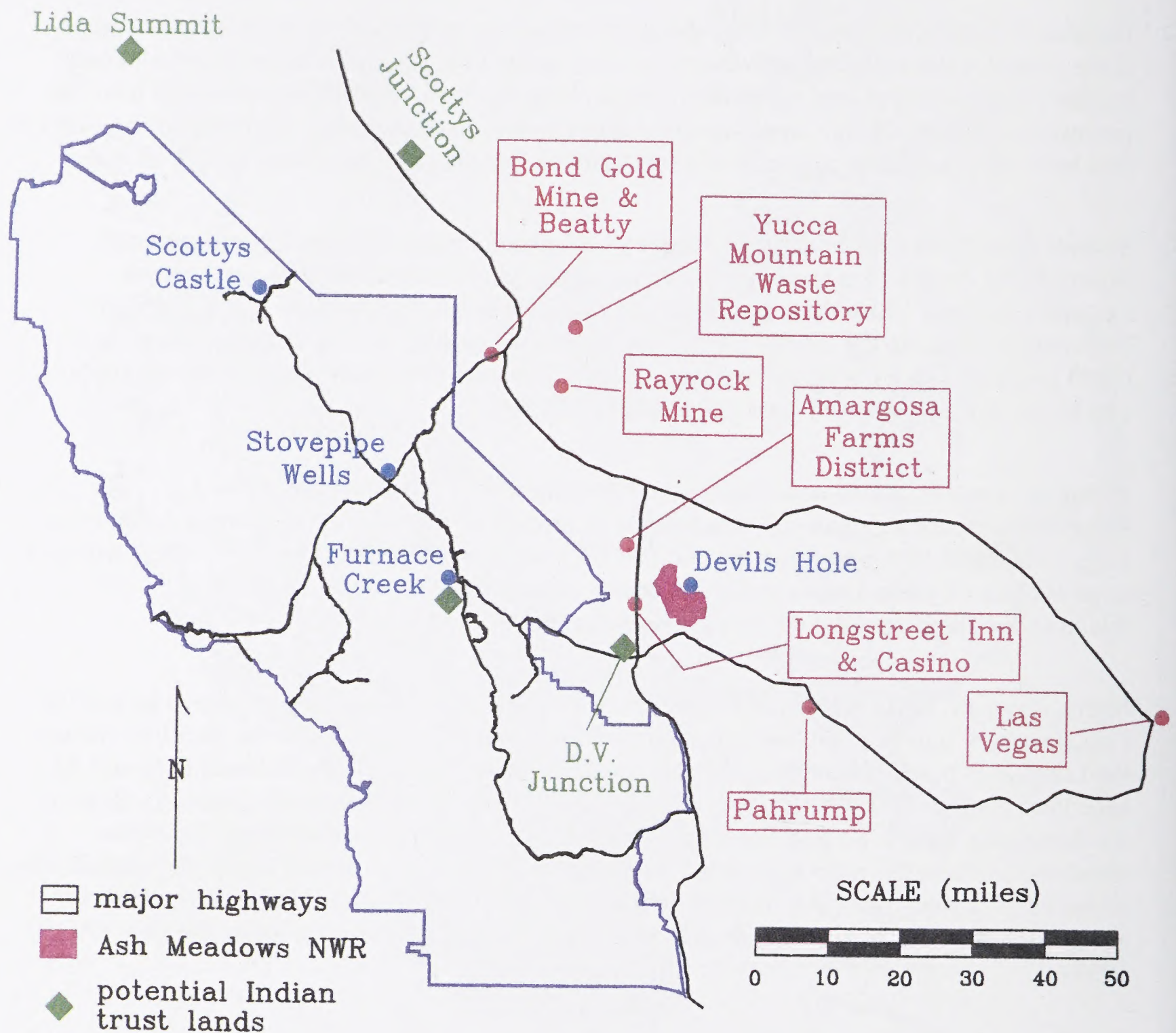
A similar situation is also occurring in the Pahrump Valley 60 miles east of the Park. This valley is currently experiencing an enormous phase of growth where the human population has risen from 8,000 to 24,000 between 1989 and 1997. Coincident with this growth is the installation of a large number of ground water wells. Forecasts suggest that annual growth rates of 13-18% for this town are likely to continue into the next century.

Many, if not all, of the commercial ventures in the planning or development phases east of the Park boundary will be completely dependent on ground water supplies. These facilities include the Longstreet hotel/casino/RV park/golf course between Death Valley National Park and Ash Meadows National Wildlife Refuge, and the development of two hay producing dairy farms in the Amargosa Valley. Serious consideration is also being given to establishing Timbisha Shoshone Indian tribe reservation trust lands at three or more sites which border the eastern side of the Park. If wells from any of these developments tap into the carbonate rock or valley fill aquifers, there may be potential impacts to springs flows or water tables inside the Park (PAL 1997).

At least one large-scale and several small-scale industrial developments are also being planned or have been developed in the local area and use ground water. The most notable example is the possible development of the nation's high level nuclear waste repository near Yucca Mountain. Water for this facility would be necessary to support infrastructure development and long-term management of stored nuclear waste. At least a few mining operations in Nevada have operations up-gradient of the Park. Examples include the Bond Gold (Barrick Bullfrog) Mine near the town of Beatty and the Rayrock Mine in the Crater Flats area near the Nevada Test Site.

While many of the above-mentioned facilities may or may not have a significant ability to individually impact the volume of water in the aquifer, they collectively have a potential to remove huge volumes of water from this limited source. In the Amargosa Valley alone, the





Map 3. Location of major ground water pumping activities adjacent to Death Valley National Park.



Nevada State Engineer estimated that 2,660,393,604 gallons were pumped from the local aquifer in 1992. Much of this water does not percolate back into the ground, and is permanently lost to the atmosphere through evaporation.

### **BIOLOGICAL RESOURCE VALUES IN WATER DEPENDENT HABITATS**

The importance of water dependent habitats and species can only be recognized when there is a clear understanding of 1) what wetland and riparian areas are, and 2) why those areas are valuable as a habitat or community of plant and animal species.

**Wetland and riparian habitats defined:** The federal protocol for wetland classification is based on standards which have been established by the U.S. Fish and Wildlife Service (Cowardin et. al. 1979). In order to be classified as a wetland, an area must possess one or more of three properties. These include:

- 1) vegetation which is predominantly in the form of hydrophytes. This vegetation does not have to be present at a site on a permanent basis, but could occur at periodic intervals
- 2) the substrate predominately consists of undrained hydric soils
- 3) the substrate is classified as a nonsoil and would be saturated or covered with shallow water during at least a portion of the growing season

Riparian habitats are different from wetlands and pertain to "banks and other adjacent terrestrial (as opposed to aquatic) environs of freshwater bodies, watercourses, estuaries, and surface-emergent aquifers (springs, seeps, oases), whose transported freshwaters provide soil moisture sufficiently in excess of that otherwise available through local precipitation to potentially support the growth of mesic vegetation" (Warner and Hendrix 1984).

The biological value of unaltered wetland and riparian habitats in the desert areas of the United States is usually much greater than other habitat types. This generalization is based on the following premises:

**Wetland and riparian areas are rare in the desert landscape:** habitats that possess perennial surface water are extremely rare in southwestern deserts (Shepard 1993). In Death Valley National Park, only 8,900 of 3,367,000 acres, or 0.3% of the total landscape has been classified as a wetland if playa habitats are excluded from the total (source: U.S. Fish and Wildlife Service National Wetland Inventory maps). Death Valley wetland and riparian areas are frequently isolated from one another by several miles and are, in effect, watered islands surrounded by a sea of desert. The 10-acre spring complex near the Park headquarters is, for example, the only significant spring discharge point in a 90,000-acre area.



**Wetland and riparian habitats are rich areas of biodiversity and possess numerous water dependent species groups:** wetland and riparian habitats are frequently inhabited by plants and animals that can not survive in arid environments. The most obvious water dependent species in Death Valley include the local fishes, the amphibian fauna (frogs and toads), several bird species, numerous aquatic invertebrates (insects, crustaceans, and mollusks), one threatened plant species, and at least a few rare plant communities (Table 1). Many of these species occur in habitats that are very small in size, and are therefore vulnerable to natural or anthropogenic disturbances.

**Table 1. Regionally significant water dependent species groups in Death Valley National Park.**

Species Group	Examples	
Fish	Pupfish Speckled dace	<u>Cyprinodon</u> sp. <u>Rhinichthys</u> sp.
Amphibians	Toads Frogs	<u>Bufo</u> sp. <u>Hyla</u> sp.
Birds	Various species, including some warblers, vireos, ducks, ibis, etc.	
Aquatic/ riparian insects	Riffle beetles Naucorids June beetles Tiger beetles	<u>Stenelmis</u> and <u>Microcyloopus</u> sp. <u>Pelocoris</u> and <u>Ambrysus</u> sp. <u>Polyphylla</u> sp. <u>Cicindela</u> sp.
Aquatic mollusks	Springsnails Tryonia snails	<u>Pyrgulopsis</u> sp. <u>Tryonia</u> sp.
Threatened hydrophilic plant species	Spring-loving centaury	<u>Centaureum namophilum</u>
Rare plant communities	Akalkine seeps and marshes, freshwater emergent marshes	

The presence of wetland and riparian areas in desert landscapes greatly increases the overall biodiversity and animal abundance in a given area. This is particularly true in Death Valley because the stark arid landscape is a difficult environment for biological organisms to live in. Bird densities in a xeric (dry) habitat in the Park were, for example, the lowest of nine desert study sites that were monitored (Parker 1982). Much of the reduced bird density and diversity at the Death Valley study site was attributed to reduced plant composition, structure, and density which resulted from high temperatures and low precipitation.



Harsh environmental conditions in desert environs are mitigated to a large extent by the presence of water. Bird abundance and activity in the Sonoran Desert, for example, is three times greater in riparian edge and interior habitats than adjacent desert upland areas (Szaro and Jakle 1985). Ten of the 25 bird species which were studied at one site were so particular in their habitat affinities that they were confined exclusively to the interior or edge portion of the riparian stand and avoided the adjacent desert scrub habitat altogether. Bird densities and diversity in wash bottoms that support phreatophytic vegetation in the Sonoran Desert have also been found to be five to 10 times greater than surrounding desert uplands (Johnson and Haight 1985).

Mohave Desert wetland and riparian areas that possess a well-developed tree canopy have a significantly greater number of bird species and bird densities than areas without an overstory (Table 2). The loss of a tree canopy along the lower Colorado River in southern California and Arizona has been implicated in the relative absence of tree dwelling bird species such as summer tanagers, yellow-billed cuckoos, brown creepers, and various warblers which would normally be more abundant if cottonwood canopies were prevalent (Ohmart et. al. 1977). The key factor that typically resulted in higher bird numbers and diversity in both of the above-mentioned areas was related to the presence of large cottonwoods, and the presence of the cottonwoods is dependent on water availability.

**Table 2. Avian density and species richness for breeding birds in riparian and non-riparian sites in the Mohave Desert (mean  $\pm$  1 standard error).**

Vegetation type	Resident birds		Transient birds
	Number of species	Density: # of males per 40 acres	Number of species
Desert riparian			
Perennial water			
cottonwood/willow	30.0 $\pm$ 5.3	350 $\pm$ 144	36.0 $\pm$ 25.3
willow	13.4 $\pm$ 2.9	574 $\pm$ 212	34.4 $\pm$ 7.4
palm	5.5 $\pm$ 0.5	133 $\pm$ 38	19.5 $\pm$ 0.5
mesquite	9.8 $\pm$ 1.7	108 $\pm$ 32	41.3 $\pm$ 8.6
Other desert			
woodland	13.4 $\pm$ 0.8	72.2 $\pm$ 14.9	24.0 $\pm$ 3.8
scrub with overstory	10.0 $\pm$ 0.9	36.6 $\pm$ 5.3	7.8 $\pm$ 1.4
scrub	3.4 $\pm$ 0.4	20.5 $\pm$ 4.1	7.9 $\pm$ 1.4

Source: England et. al. (1984)



Wetlands do not have to be especially big to attract large numbers of birds. Bird diversity in the 5.5-acre wetland at Darwin Falls in Death Valley National Park was found to include 75 species (England et. al. 1984). The number of species at that location are in strong contrast to the five or so species that were observed on a desert scrub plot in northern Death Valley (Parker 1982). These watered habitats are important resting and foraging sites for migrants, and are used to a higher degree as stopover sites than adjacent uplands (Stevens et. al. 1977).

Fish, frog, and toad species in the Death Valley area are completely dependent on wetland habitats and can not persist in areas lacking permanent water. The various forms of pupfish and speckled dace are only present at five sites within the Park. Red-spotted toads and western tree frogs are also present in the Park, and are not found outside of wetland and/or riparian areas. Even the more drought tolerant species such as the red-spotted toad are rarely found any distance from water. When this particular animal was studied at the National Park Service (NPS) housing area near Furnace Creek, 146 of the 165 animals which were observed were found in water or on a damp substrate (Turner 1959). In contrast, only 16 of the animals that were seen during this study were found on a dry substrate. Affinity for water is also apparent for western toads at Darwin Falls in the western portion of the Park (Mr. Doug Threlhoff, Death Valley National Park, unpublished data). During the spring of 1996, 156 of the 176 animals that were observed at this site were found in surface streams or pools (Figure 1).

In spite of their small size, many aquatic insects and mollusks are also significant biological components in desert wetland environments. Many species of beetles, crawling insects, and springsnails are strictly confined to water and would quickly die if exposed to desiccating conditions. All of the local springsnail species in the genera Pyrgulopsis and Tryonia in the family Hydrobiidae are, for example, strictly aquatic in nature (Landye 1973). Other local snail taxa in the genus Assimineia (family Assimineidae) are semi-terrestrial in nature. Badwater snails in Death Valley National Park are most abundant in areas 12 inches or less from standing water (Sada 1995). The affinity of some of the more riparian dependent species for moist, alkaline areas has also been recently substantiated for the Death Valley June beetle (Russell 1995). Similar patterns of habitat use also apply to a variety of geographically restricted tiger beetle taxa (Rump 1956, Rump 1957).

At least one rare plant is known to occur in Death Valley and is dependent on moist environments for its survival. The spring-loving centaury historically occurred at Travertine Springs near Furnace Creek (Schramm 1982), while a specimen in the National Herbarium indicates these plants have been collected near Texas Spring. The plant is currently restricted to one or two small seeps near Texas Spring (Mr. Doug Threlhoff, Death Valley National Park, California, unpublished data). This distinctive species is typically restricted to wet salt grass meadows and areas around springs and streams (Reveal et. al. 1973) and rarely, if ever, occurs in xeric landscapes. The limited distribution of this species today has resulted from water diversion activities in the 1970's.



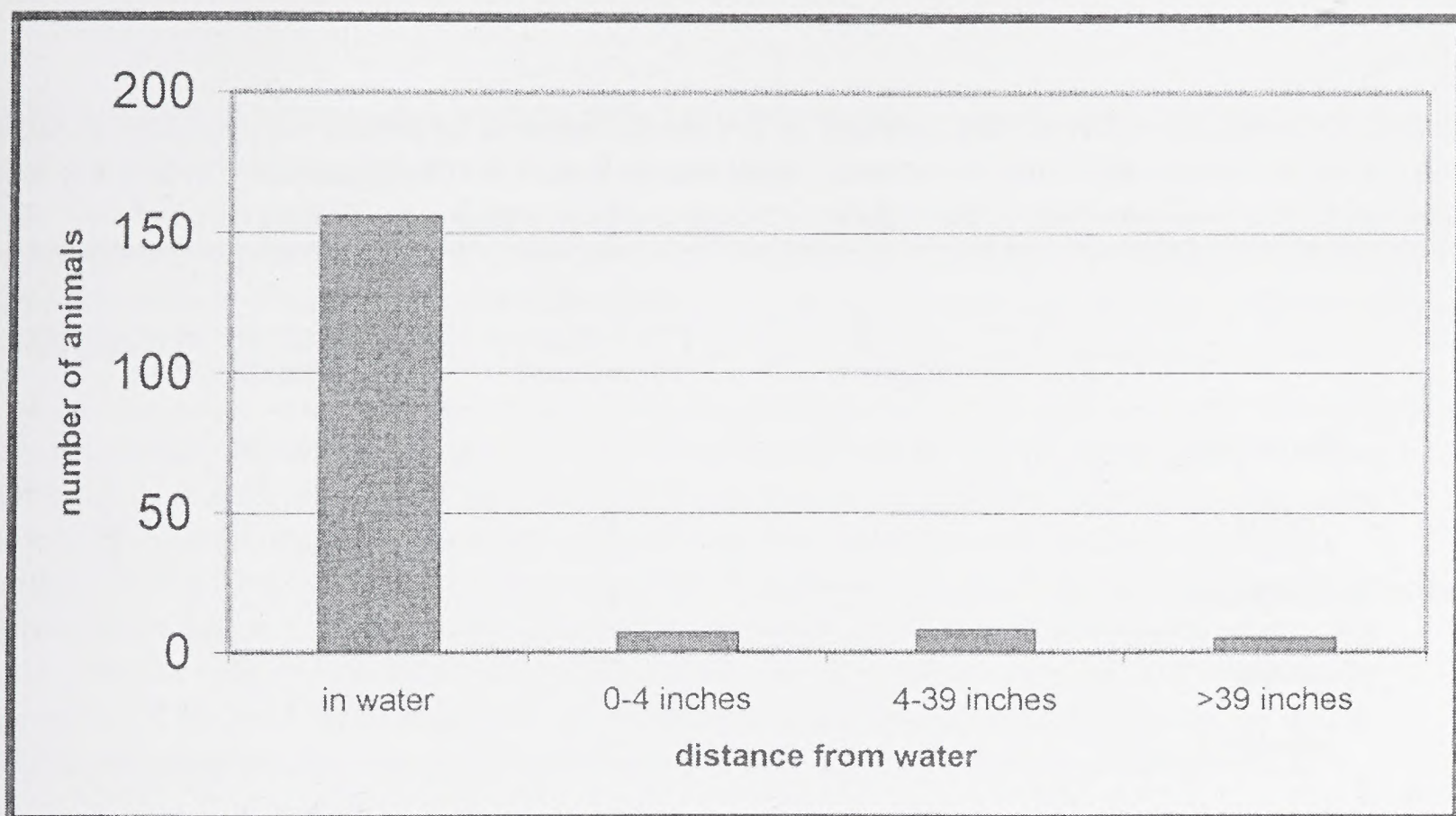


Figure 1. Distribution of western toads at Darwin Falls in relation to increasing distance from surface water.

**Wetland and riparian areas contain numerous threatened, endangered, and sensitive/endemic species:** aquatic habitats across the country possess a disproportionate number of species that are being impacted by human activities. Even as early as 1985, 46 fish in North America were considered to be endangered, while 118 others were considered to be rare or vulnerable to extinction (Williams et. al 1985). This same trend is especially true for the Death Valley area where several endemic species have limited geographic distributions. Many of these plants and animals have been listed as endangered or threatened by federal or state governments (Appendix B). Other species in the Park were formerly considered to be U.S. Fish and Wildlife Service Category 2 Candidate (C2) species. This classification implied that they were "taxa for which information now in the possession of the [U.S. Fish and Wildlife] Service indicates that proposing to list as endangered or threatened is possibly appropriate, but for which persuasive data on biological vulnerability and threat are not currently available to support proposed rules" (50 CFR Part 17, Nov. 15, 1994). With the U.S. Fish and Wildlife Service (USFWS) abolishment of the C2 list in 1996, all of the former C2 species in the Park are now considered to be NPS "Sensitive Species". Many of these same species also appear on a sensitive species list that is maintained by the state of California. A total of 58 sensitive or listed species are currently known to exist in Park wetland or riparian habitats that receive their water from the regional aquifer (Table 3 and Appendix B).



**Table 3. Summary table of the number of federally listed or sensitive/rare species groups which occur within wetland or riparian habitats in Death Valley National Park. This table only includes habitats that derive their water from the carbonate rock aquifer.**

	Animal status		
	Endangered	Threatened	Sensitive/rare
Mammals	0	0	4
Birds	2	0	28
Amphibians	0	0	2
Fish	1	0	3
Snails	0	0	7
Insects	0	0	9
Crustaceans	0	0	1
Plants	0	1	0
Total	3	1	54

Most of the listed or sensitive species have acquired special status because their total distribution is limited to a relatively small geographic distribution. This pattern has left many of these species inherently vulnerable to habitat disturbance and/or impacts associated with the introduction of non-native or exotic species. The large concentration of endangered and threatened species in the small geographic area near Devils Hole and the Ash Meadows National Wildlife Refuge area distinguishes it as one of the greatest concentrations of listed species in the western United States (Ms. Cynthia Martinez, USFWS, Las Vegas, NV, pers. comm.).

**Wetland and riparian areas along the Amargosa River have a unique scientific value:** the Ash Meadows/Death Valley area is a classic example of a plant and animal laboratory in evolution. This fact is due to the relatively recent development of the desert climate and a unique geologic history where large marshes and lakes were relatively plentiful as recently as 15,000 years ago. This combination of events has had the unusual result of confining several aquatic species that were probably widespread at the start of the Pleistocene epoch to remnant wetlands that have persisted for thousands of years.

The presence of the unique suite of pupfish taxa along the Amargosa River is analogous to the presence of land tortoises and Darwin's finches on the Galápagos Islands (Brown 1971). Both animal groups originally colonized their respective areas thousands of years ago and became



isolated in separate habitats that possess different environmental conditions. Through time, natural selection and isolation transformed a limited number of ancestral lines into several unique varieties. The existence of nine pupfish species and subspecies in isolated wetlands along the Amargosa River is therefore analogous to the 13 finch species and 15 tortoise subspecies on the isolated islands of the Galápagos archipelago (Figure 2). In each case, species differentiation was facilitated by the separation of populations that could not cross inhospitable habitats.

Physical extremes on the Galápagos Islands have helped to shape the morphological characteristics and physiological tolerances of the tortoises on different islands and the same general process of natural selection has affected pupfish which inhabit wetlands along the Amargosa River. The fish have, for example, developed/retained an ability to live in water that is 2.5 times more saline than sea water (Naiman et. al 1976). With regard to temperature, some pupfish taxa are able to live for short periods in water temperatures equal to 107° Fahrenheit (Brown 1971). Both of these adaptations are important in a desert environment where water salinities and temperatures are significantly greater than other areas in the United States.

Each pupfish taxa has evolved to the extent that they are morphologically distinct (Miller 1948) and genetically different (Turner 1973). Differences in breeding behavior have been documented for pupfish in habitats that are relatively close to one other but possess different environmental conditions (Soltz 1974). In a similar vein, genetic variation has also been found in different populations of speckled dace along the Amargosa River. This fact suggests that "each desert wetland community functions as an evolutionarily significant unit" (Sada et. al 1995).

Much of the genetic and physical variability in the pupfishes has been attributed to different environmental conditions that exist in different wetlands (e.g. warm spring orifices vs. cool spring outflows, high salinity vs. low salinity areas) and differences in population size which are influenced by habitat size (small springs vs. large springs). This relationship suggests that pupfish evolution is highly dependent on the maintenance of natural habitats, and that human modifications to environments will alter the course of natural selection and speciation.

The presence of unique species is not strictly limited to vertebrates, and the local Death Valley/Ash Meadows area also has a distinct springsnail fauna. All of the known members belong to the Tryonia and Pyrgulopsis genera. The level of endemism is so pronounced that some snail species are confined to a single spring. This same pattern also exists for two distinct naucorid species that exist in different springs only three miles apart. The development of these two animals occurred because 1) the ancestral line was aquatic and flightless, and 2) populations became separated as the desert climate created an inhospitable landscape between remnant wetlands.

In short, the unique plants and animals that exist within the biological laboratory of Death Valley National Park offer significant scientific opportunities. At some future time, these species may hold the key to understanding how fast evolution takes place, as well as how plants and animals adapt physically, behaviorally, and physiologically to their immediate surroundings.



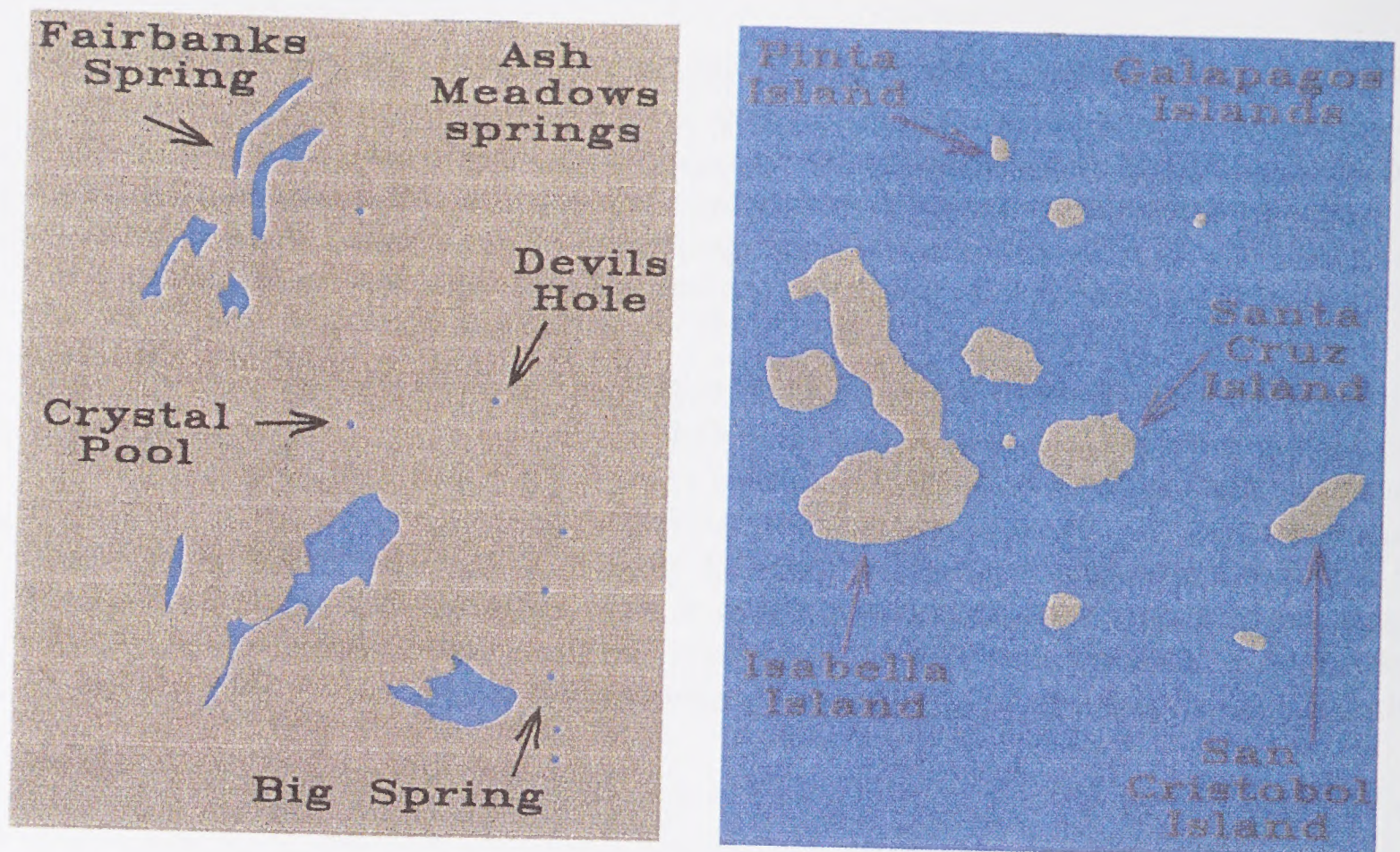


Figure 2. Isolation of wetland and island habitats at Ash Meadows/Devils Hole and the Galápagos Islands. Representation is meant to show how the term "islands" can be applied to wetland habitats which are surrounded by a desert landscape, as well as the more typical application of the term to land masses which are surrounded by ocean. Drawing not to scale.

The scientific value of water dependent habitats is further emphasized by the recent discovery of several new species. Springsnail species in Death Valley have only recently been taxonomically described (Hershler and Sada 1987, Hershler 1989). Descriptions of new species of riffle beetles and crawling insects in and adjacent to Death Valley have also been recently written (Shepard 1990, Polhemus and Polhemus 1994), and North America's first subterranean amphipod in the genus *Hyaella* was recently found in Death Valley (Dr. William Shepard, California State University, Sacramento, CA, pers. comm.). The recent taxonomic description of the Ash Meadows lady's tresses orchid in Ash Meadows demonstrates that new botanical discoveries in the local area are also possible (Sheviak 1989). The discovery of all of the above-mentioned species suggests that as springs are more carefully studied, new taxa in several different groups will be recognized and the scientific value of local wetlands will further increase.

The value of some water dependent species even overlaps into the field of geology and paleoclimatology. As genetic and morphological relationships between organisms in different basins are better understood, the information helps to corroborate or refute theories on how rivers were connected during the last million years. This utility has long been known with regard to the



pupfish (Hubbs and Miller 1948, Minckley et. al. 1986), and has recently been demonstrated for springsnails and aquatic insects (Hershler and Pratt 1990, Polhemus and Polhemus 1997).

**Regional loss/degradation of wetland and riparian resources increases the value of pristine habitats inside Death Valley National Park:** the loss of water dependent habitats across the United States since 1780 has been dramatic. During the past 200 years, it has been estimated that the lower 48 states have lost 53% of the wetlands which were present in colonial America (Dahl 1990). California has lost a greater percentage of its wetland acreage than any other state with 91% percent of the original habitats being drained, filled or manipulated. Nevada has lost 52% of its original wetlands, and only 0.3% of the state acreage is now classified as a wetland. Loss of riparian habitats in California, Arizona, and New Mexico has been so extensive that they have been considered to be "endangered ecosystems" (Noss et. al. 1995).

The same loss of wetland and riparian areas that has occurred across the country is also prevalent in the area around Death Valley National Park. Several large springs in the Las Vegas Valley historically existed but are now completely dry. The same scenario of wetland loss is also true for the few large springs in Pahrump, Nevada. Modification of wetland habitats that were historically near the town of Tecopa 10 miles east of the Park boundary was so extensive that it resulted in the extermination of the Tecopa pupfish in the 1970's. The original spring source that provided water for this animal's habitat is now the water supply for a public bathhouse (Soltz and Naiman 1978). This fish was the first creature to be declared officially extinct under the provisions of the 1973 Endangered Species Act (Miller et. al. 1989).

Stated more concisely, the ramifications of anthropogenic activities on the Death Valley fish fauna have been so severe that:

Over the past 35 years, man's disruption in the Death Valley area have resulted in extinction of one fish species (Ash Meadows killifish) and three or four of the 11 recognized subspecies (Raycraft Ranch killifish, Pahrump Ranch killifish, Shoshone pupfish, and Tecopa pupfish)...The Manse Ranch killifish, the only remaining member of the genus *Empetrichthys*, survives only in refugia outside of its native Pahrump Valley. None of the fishes of the Death Valley System have been unaffected by man, and at most, only five can be considered healthy and undepleted (Soltz and Naiman 1978).

Two primary reasons for the loss of these species can be attributed to 1) the diversion of surface water, and 2) the mining of ground water.

The net loss of wetland and riparian systems in the greater Death Valley area therefore tends to dramatically increase the value of habitats that occur inside the Park.



## EXCEPTIONAL WETLAND / RIPARIAN HABITATS IN DEATH VALLEY NATIONAL PARK

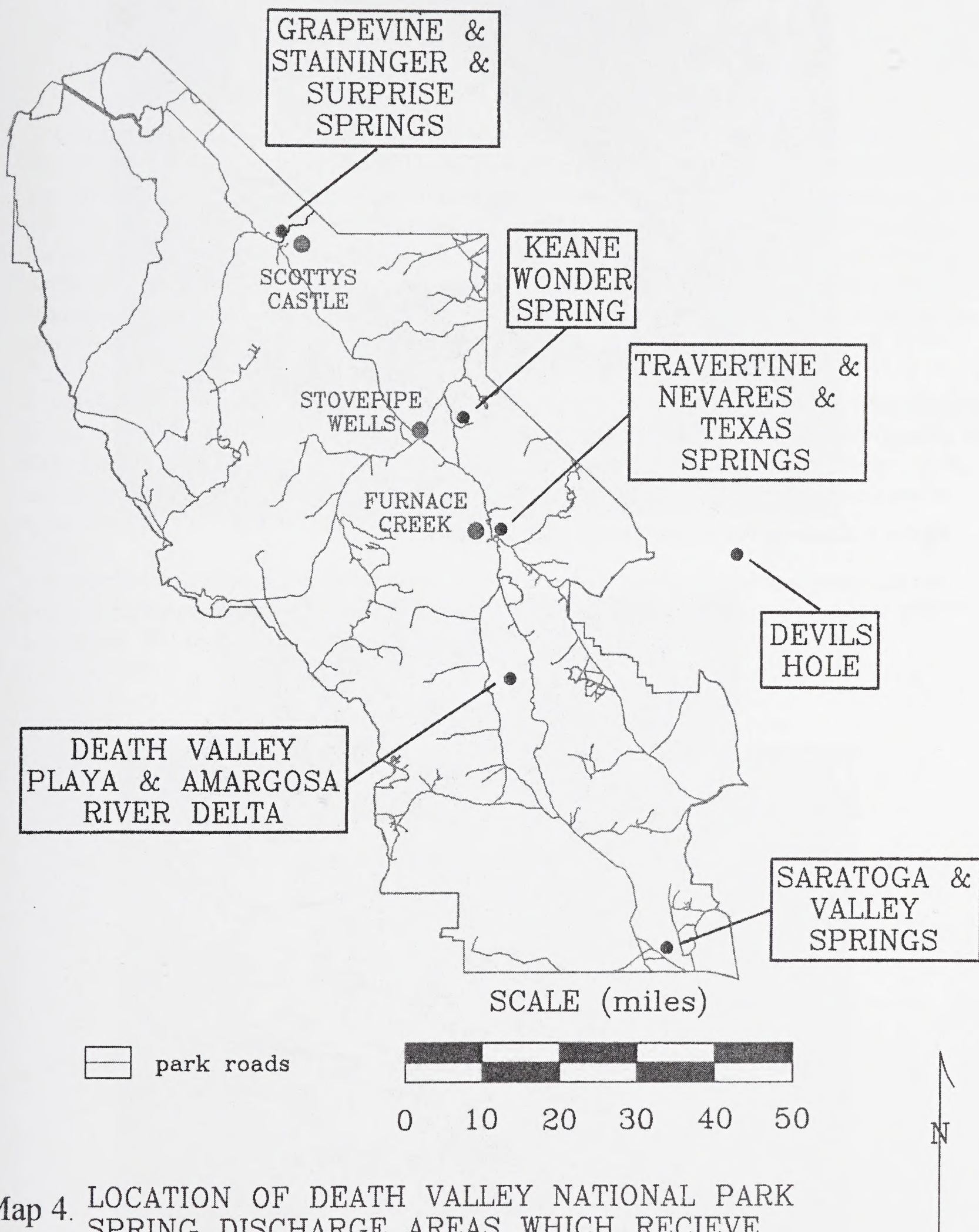
Several large discharge areas that derive their water from the regional carbonate rock aquifer exist in Death Valley National Park (Map 4). These include 1) Devils Hole, 2) the Grapevine Springs discharge area which consists of Grapevine, Staininger, and Surprise Springs, 3) Keane Wonder Springs, 4) the Furnace Creek discharge area which includes Travertine, Nevares, and Texas Springs, 5) Saratoga and Valley Springs, and 6) the Death Valley playa/Amargosa River delta. Each of these discharge areas is typically isolated from one another by several to many tens of miles. Site specific descriptions for each of these locations are described below.

Devils Hole: this 40-acre parcel exists as a detached unit of Death Valley National Park and is located 12 miles east of the main body of the Park. The unit is surrounded by a matrix of Bureau of Land Management and U.S. Fish and Wildlife Service lands in the state of Nevada. The most obvious physical feature at the site is the pool of crystal clear 92° Fahrenheit water. The pool surface is approximately 11 feet wide and 71 feet long (Baugh and Deacon 1983). The southern end of the pool possesses a rock shelf that is 16 feet long and 11 feet wide. Water depth over this shallow shelf varies on a daily basis. These two to three inch fluctuations are primarily due to changes in atmospheric pressure and the lunar tide cycle. Total water depth over the shelf during the late 1990's was only on the order of three to 20 inches. The rock surface at the northern end of the shallow shelf abruptly terminates, and there are a series of small, submerged shelves that are present 23, 49, and 78 feet below the water surface. The water-filled cavity continues below the 78-foot shelf for an unknown distance, and is tied to the regional carbonate rock aquifer.

The most notable biological resource at Devils Hole is the Devils Hole pupfish (Figure 3). This fish species' entire naturally occurring distribution is limited to this single site. As such, the species may have one of the smallest geographic ranges of any known vertebrate species (Deacon et. al 1995). The limited distribution of the fish is part of the reason that the fish is listed as endangered by the state of Nevada and the federal government. The shallow shelf described above serves as the primary spawning site for the animal (Figure 4). Pupfish numbers vary on a yearly basis, and spawning is most pronounced between the beginning of April and the middle of June (James 1969, Deacon and Deacon 1979). The number of fish at this site is relatively low, and typically ranged between 220-250 in the spring to 470-570 in the fall during the 1990's. Pupfish are rarely present at depths in excess of 100 feet (Dr. Stan Hillyard, University of Nevada, Las Vegas, pers. comm.).

Other notable biological resources at Devils Hole include the Devils Hole riffle beetle and the Amargosa tryonia snail. The abundance of riffle beetles is greatest within six feet of the water surface, although some animals are present at slightly greater depths (Dr. William Shepard, California St. Univ., Sacramento, pers. comm.). Both animals have distributions that are limited to the Amargosa River drainage. Recently completed genetics work for the snail suggests this animal may be better described as a new species (Hershler et. al., in press).







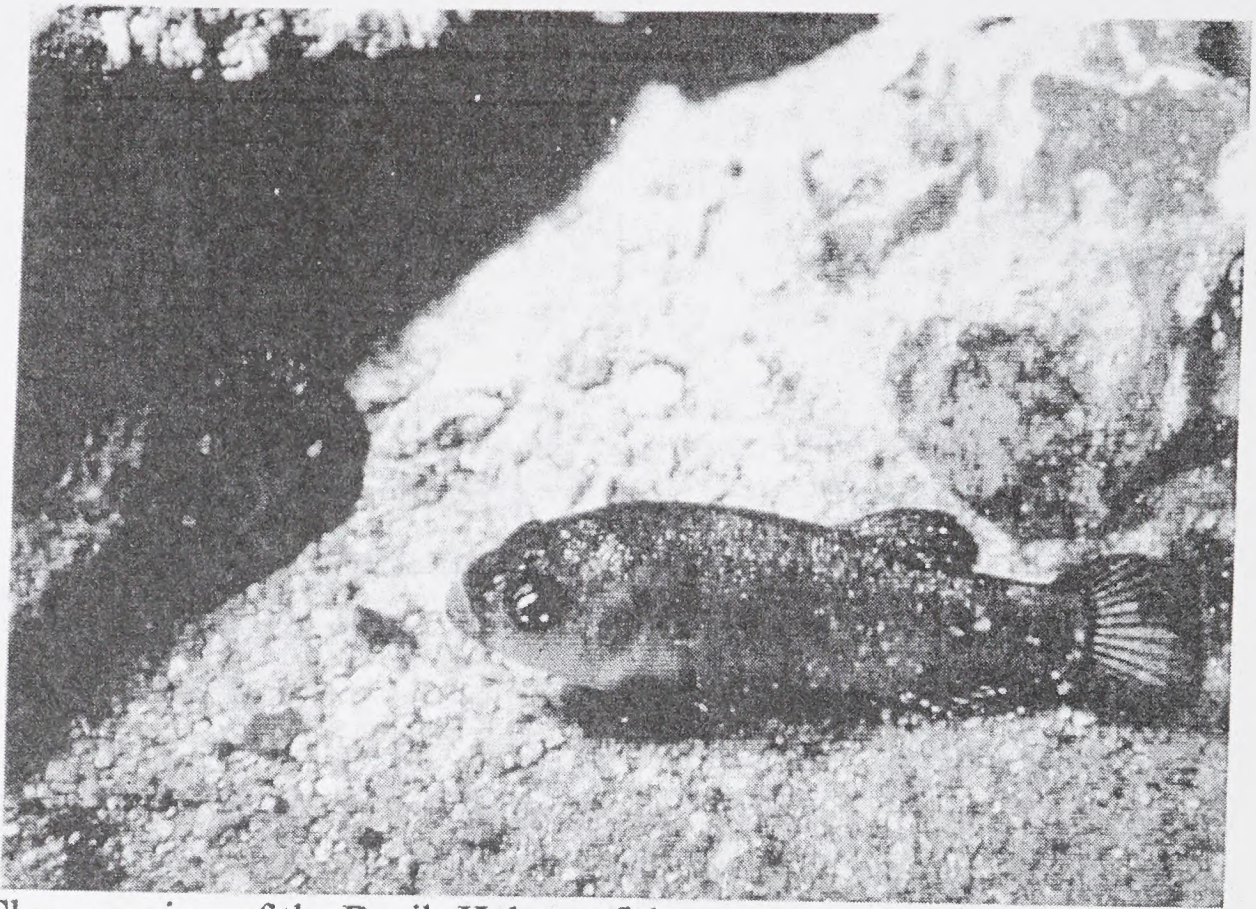


Figure 3. Close-up view of the Devils Hole pupfish.



Figure 4. View of the Devils Hole pupfish spawning shelf.



Travertine/Nevares/Texas Springs complex: this discharge area is located near the Park headquarters in the central portion of Death Valley National Park. Travertine Springs consists of several springs and seeps which occur over an area which is approximately two miles long by one mile wide (Figure 5). Several of the springs are relatively warm (89-96° Fahrenheit), and are located on a mound immediately north of California Highway 190. The vast majority of the spring outflows are less than 650 feet long, and only one or two have a length that exceeds 1,300 feet. A separate, non-thermal water source also is present in the bottom of Furnace Creek Wash on the south side of the highway across from the thermal springs (Pistrang and Kunkel 1964).

Texas Spring is located near the northwest corner of the Travertine Springs group. This particular spring is also thermal (90° Fahrenheit). The original spring outflow and biological community for Texas Spring were completely eliminated when a water delivery system was developed and the spring discharge was put in a pipe. An outflow stream was recreated in the mid-1990's and is approximately 1,600 feet in length at the present time.

Nevares Spring is located five miles north of the Travertine Springs group and possesses one primary discharge point and several small seeps. Water temperature for the main spring is 104° Fahrenheit. The main spring outflow is roughly 1,300 feet long.

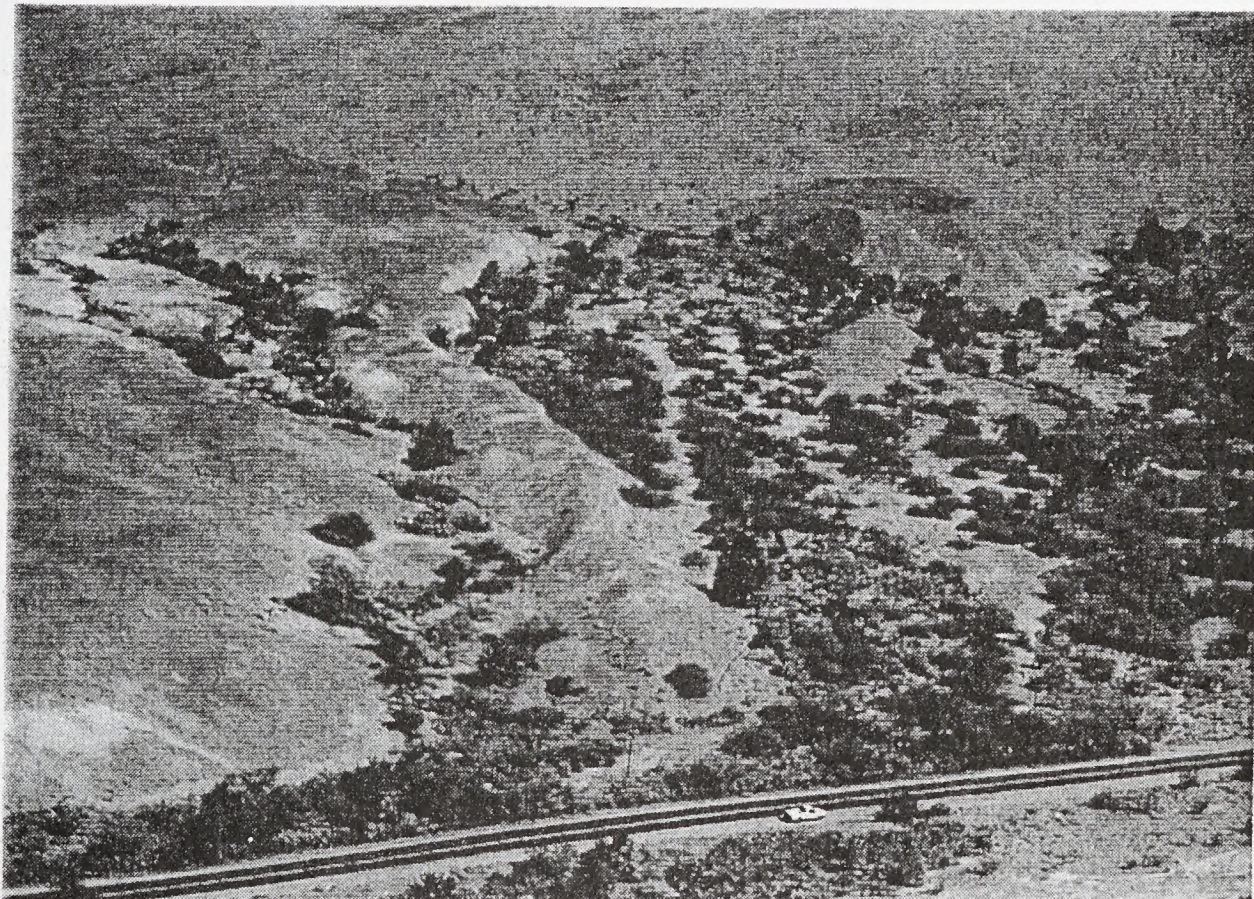


Figure 5. Travertine Springs and vicinity.



Biological resources at Travertine and Nevares Springs include several endemic aquatic invertebrate species. Three of these animals include the Furnace Creek riffle beetle (Figure 6), the Furnace Creek naucorid bug, and the robust tryonia snail. Each of these species is found nowhere else in the world (Hershler 1989, Shepard 1990). Travertine and Nevares Springs also contains habitat that is occupied by the Badwater snail. This mollusk is only known to occur at two sites in the world outside of the Furnace Creek area (Hershler 1987). All four of the above-mentioned animals are classified as National Park Service Sensitive Species because they have narrow geographic distributions and have experienced population declines and habitat losses over the last 30 years. Texas Spring is known to have a new and as yet undescribed subterranean amphipod species (Figure 7). This crustacean is the first subterranean *Hyalella* species that has been discovered in North America (Dr. Adam Baldinger, Harvard University, pers. comm.). Bird surveys around the springs have not been conducted, but species diversity could be expected to be significantly greater than adjacent upland habitats. A least one record of endangered least Bell's vireos exists for the Travertine Springs area. Red-spotted toads are present at numerous springs and seeps in the spring complex. The presence of these animals represents the only amphibian population in an area that measures 800,000 acres in size (Threlhoff 1996).

Spring outflows in the Travertine and Texas Spring area also provide habitat for the spring-loving centaury. This plant is currently listed as a threatened species by the federal government. The distribution of this plant in the Park is limited to this one area.

A well-developed riparian plant community is also present in the discharge area, and is in stark contrast to the surrounding desert landscape. The area around the springs is dominated by a screwbean and honeybean mesquite overstory. Understory species in the area include a variety of grasses, shrubs, and herbs which including mulefat, arrowweed, and saltgrass. Non-native palms are also present along several spring outflows.

Grapevine/Staininger/Surprise Springs complex: all three of these springs occur within a three-mile radius of Scotty's Castle in the northern part of the Park. Grapevine Springs contains at least a few dozen springs and seeps which occur over an area which measures two miles long by one mile wide (Figure 8). As a group, the springs are located two miles west of Scotty's Castle. The combined discharges of all of the springs makes this one of the largest, if not the largest, spring discharge areas in the Park (Miller 1977). Many of the spring outflows exceed 1,600 feet in length. Water temperatures are highly variable depending on the spring orifice. Some of the springs are relatively cool (79°F) while others are thermal in nature (99° F).

Staininger Spring originates one mile east of Scotty's Castle, and flows as a discontinuous surface stream. The stream flow terminates approximately a quarter of a mile west of the Castle. The water temperature and discharge rate at the easternmost spring discharge point has been measured at 75°F and 100 gallons per minute, respectively. Surprise Spring is located approximately two miles south of Scotty's Castle. The surface stream coming from this discharge point is 160 feet long.



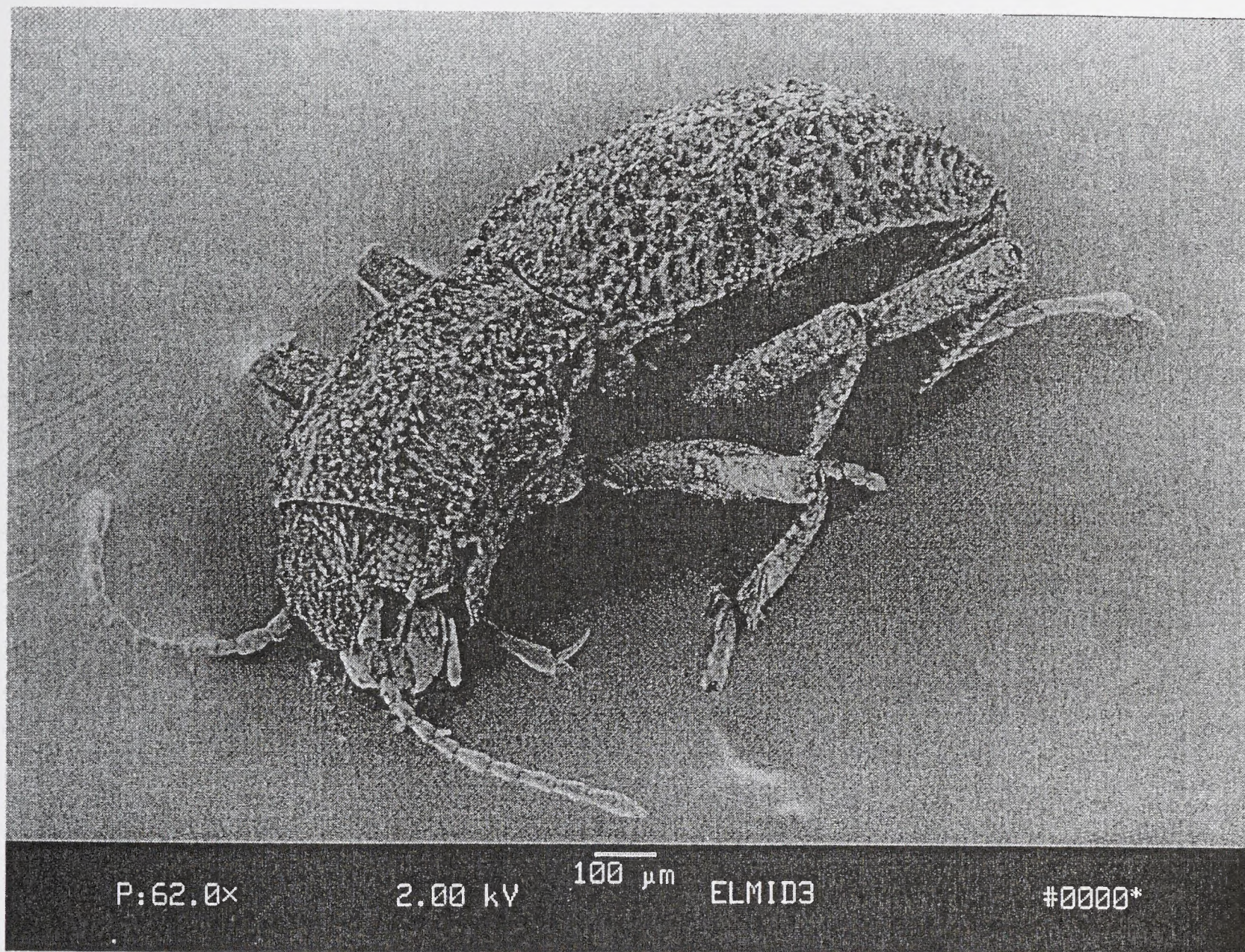


Figure 6. Scanning electron microscope image of a Furnace Creek riffle beetle.

The extreme aridity of the area around Scotty's Castle (and the contrasting importance of water dependent habitats) is demonstrated in the analysis of maps that were developed by the USFWS National Wetland Inventory program. In the four USGS 7 1/2 minute topographic quadrangles which are closest to the Scotty's Castle and Grapevine Springs complex, less than one percent (0.046%) of the total land area is classified as a wetland.

Biological surveys of wetland and riparian habitats in the Scotty's Castle area have been minimal. Much of this trend is attributable to the fact that the Grapevine Springs area has been closed to public entry because the area possesses significant archeological resources. The travertine-encrusted spring runs at Grapevine Springs are known to possess two endemic snail species that include the Grapevine Springs elongate tryonia and the Grapevine Springs squat tryonia (Figure 9). The entire distribution of both species is limited to the Grapevine Springs area (Hershler 1989). The Oasis Valley springsnail is present at these springs and at Surprise and Staininger Springs. The creeping water bug Pelocoris biimpressus shoshone is present in at least one stream at Grapevine Springs, and as such represents a highly disjunct population. The normal distribution of this species occurs along the White River drainage in central Nevada (Polhemus and Sites 1995). All of these invertebrate species are currently considered to be NPS Sensitive Species.



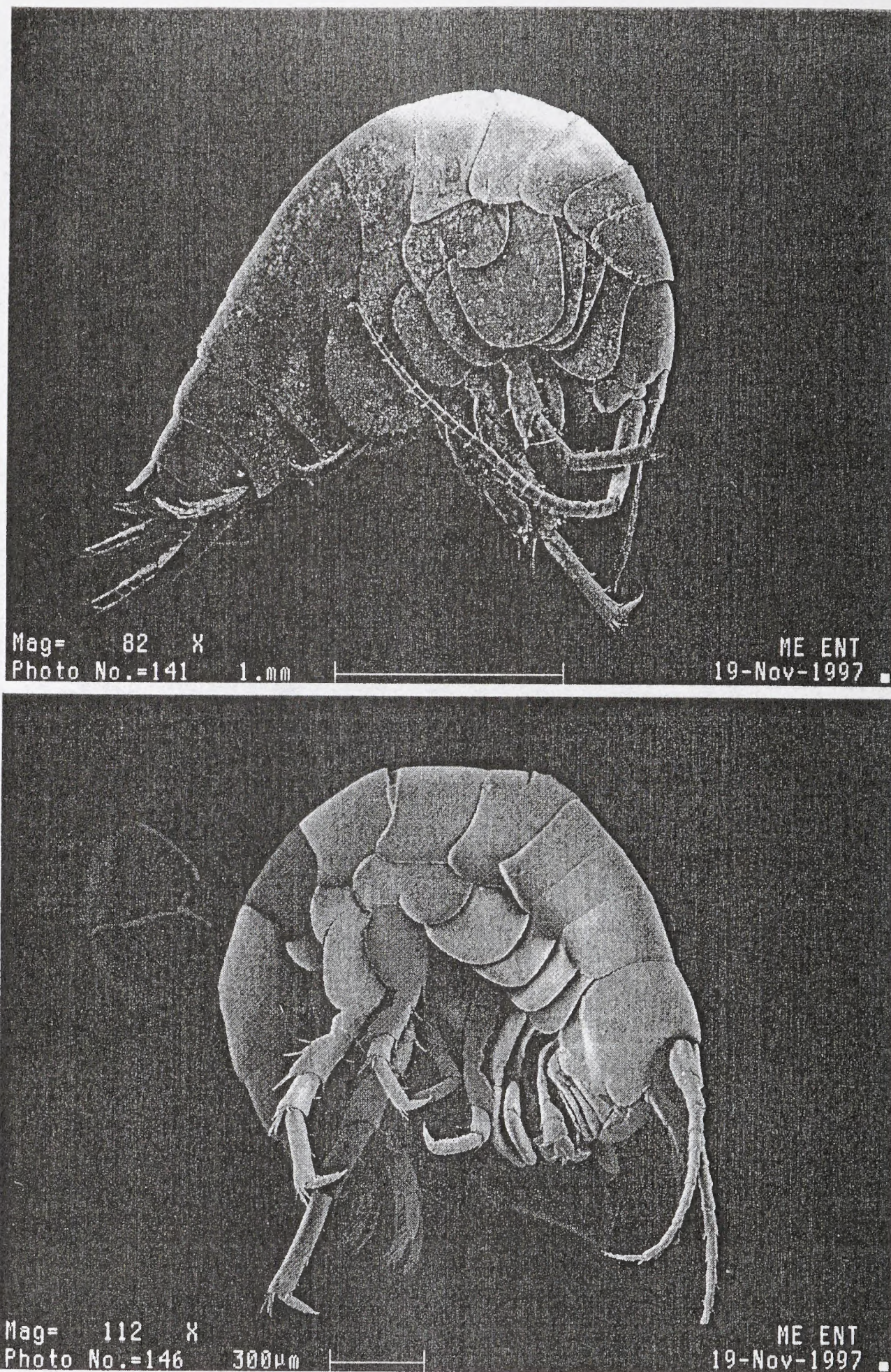


Figure 7. Scanning electron microscope image of a subterranean Texas Spring amphipod (bottom image). The presence of small antennae and the complete absence of eyes are some of the features that distinguish it from other local species (top image).





Figure 8. Oblique view of wetland habitats in the vicinity of Grapevine Springs.

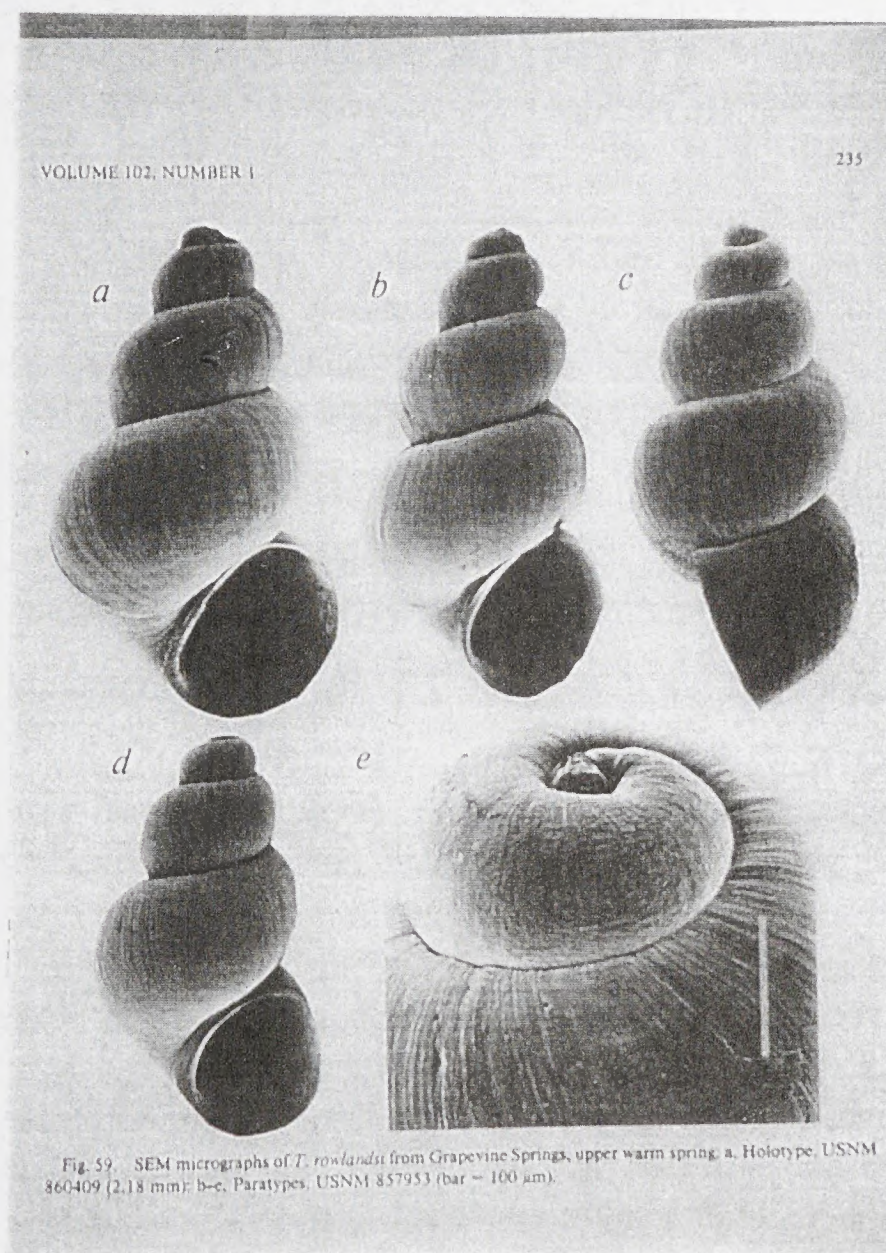


Figure 9. Scanning electron microscope image of springsnails from the Grapevine Springs area.



Bird surveys for the Grapevine Springs area are rudimentary at best, but the endangered least Bell's vireo is known to nest in the easternmost wetland at Staininger Spring (Mr. Thomas Heindel, Big Pine, CA, pers. comm.). Pacific tree frogs are relatively common at Staininger Springs, while red-spotted toads have been reported at Grapevine Springs (Marlow 1996).

The riparian plant communities around the Grapevine/Staininger/Surprise Springs area has only been superficially surveyed. Preliminary work indicates that plant species presence and diversity vary greatly between the three areas. These variances are probably related to differences in spring discharge rate, soil type, and hydrologic regime. Common plant species in the area include arrowweed, mulefat, wild grape, honeybean and screwbean mesquite, and common reed. The combination of these species, particularly on the spring mound above the Lower Vine Ranch, creates a dramatic oasis in an otherwise arid environment.

Keane Wonder Springs: the spring that bears this name is very small and borders on the verge of insignificance. A larger spring is present, however, approximately 1/3 of a mile to the southeast, and during the cooler months the second spring can have an outflow 3,200 feet in length. The larger spring is adjacent to a hillside and possesses a strong odor that is caused by out-gassing of sulfur dioxide. The discharge of both springs has not been accurately measured, but it is smaller than other discharge areas that are mentioned in this report. Other major springs in the vicinity are lacking.

Amphibians and endemic invertebrates have not been found at the Keane Wonder Springs. This situation may be the result of an aberrant water chemistry associated with the sulfurous odor. Nelson bighorn sheep are known to water at the springs (Figure 10). Multiple sightings of animals in the area suggest that this water source is an important element in maintaining the local bighorn herd (Coonan 1992).

The lack of abundant water in the vicinity of the Keane Wonder Springs has not been conducive to the development of a plant community with a well-developed overstory. As a result, plant cover is dominated by saltgrass, wire grass, and cattails.

Saratoga/Valley Springs: both of these wetlands are located near the southern boundary of Death Valley National Park. Saratoga Springs consists of several spring orifices that provide water to three large open water ponds. The ponds collectively measure 6.6 acres in size (Figure 11). Given their size, this may be the third largest marsh habitat in the Park behind the Saline Valley marsh in the western portion of the Park and Cottonball Marsh in central Death Valley. Valley Springs is located along the Amargosa River channel five miles northwest of Saratoga Springs. The hydrologic origin of Valley Springs is uncertain because of a lack of scientific investigations. The water coming to the surface might be forced up by an underground impermeable substrate. The input of water along various points of the river channel is responsible for the presence of permanent water along a two-mile reach of the river channel (Figure 12).





Figure 10. Aerial view of a bighorn sheep watering at Keane Wonder Spring.

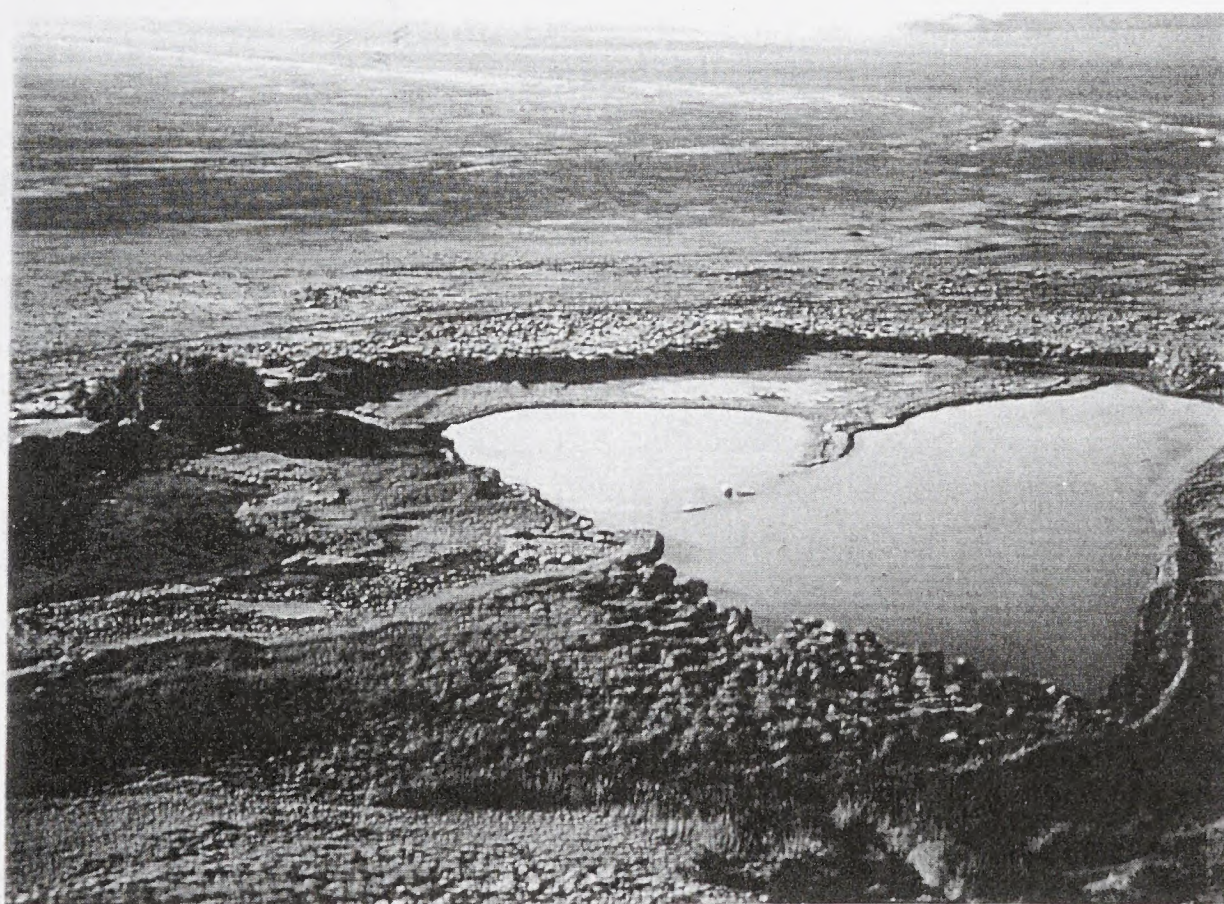


Figure 11. Aerial view of the open water ponds and wetland habitat at Saratoga Spring.





Figure 12. View of the Valley Springs area along the lower Amargosa River.

The fauna of these two wetlands is relatively diverse. The Saratoga Springs pupfish is present at the ponds that bear this name, and this subspecies only occurs at the one locality. Five rare invertebrate species also occur at Saratoga Springs and include the Amargosa tryonia snail, the Amargosa springsnail, the Saratoga Springs belostoma bug, the Amargosa naucorid bug, and the Death Valley June beetle. The first four species are strictly aquatic in nature and their distribution in the Park is limited to Saratoga Spring. The June beetle occupies terrestrial areas, but its distribution is limited to saltgrass habitats where shallow ground water is present (Russell 1995). The June beetle and both snail species have distributions entirely confined to the Amargosa River drainage. Five notable bird species are known to occur at Saratoga Springs. These include the yellow warbler (Figure 13), the Cooper's hawk, the western snowy plover, the long-billed curlew, and the long-eared owl. All of these species have been placed on state or federal sensitive species lists because of habitat loss or population declines across their geographic ranges. Saratoga Springs is also unique in that it is one of the few locations in the Park where red-spotted toads (Figure 14) and Pacific tree frogs occur in the same area.

Valley Springs is not known to have a unique invertebrate fauna, but does possess habitat that is occupied by the Amargosa River pupfish. This pupfish subspecies only exists at two locations along the length of the Amargosa River. One site is inside the Park at Valley Springs, and the other is outside the Park in Tecopa Canyon. Valley Springs also has been documented as having Amargosa Canyon speckled dace following flash flood events (Sada et. al. 1997).



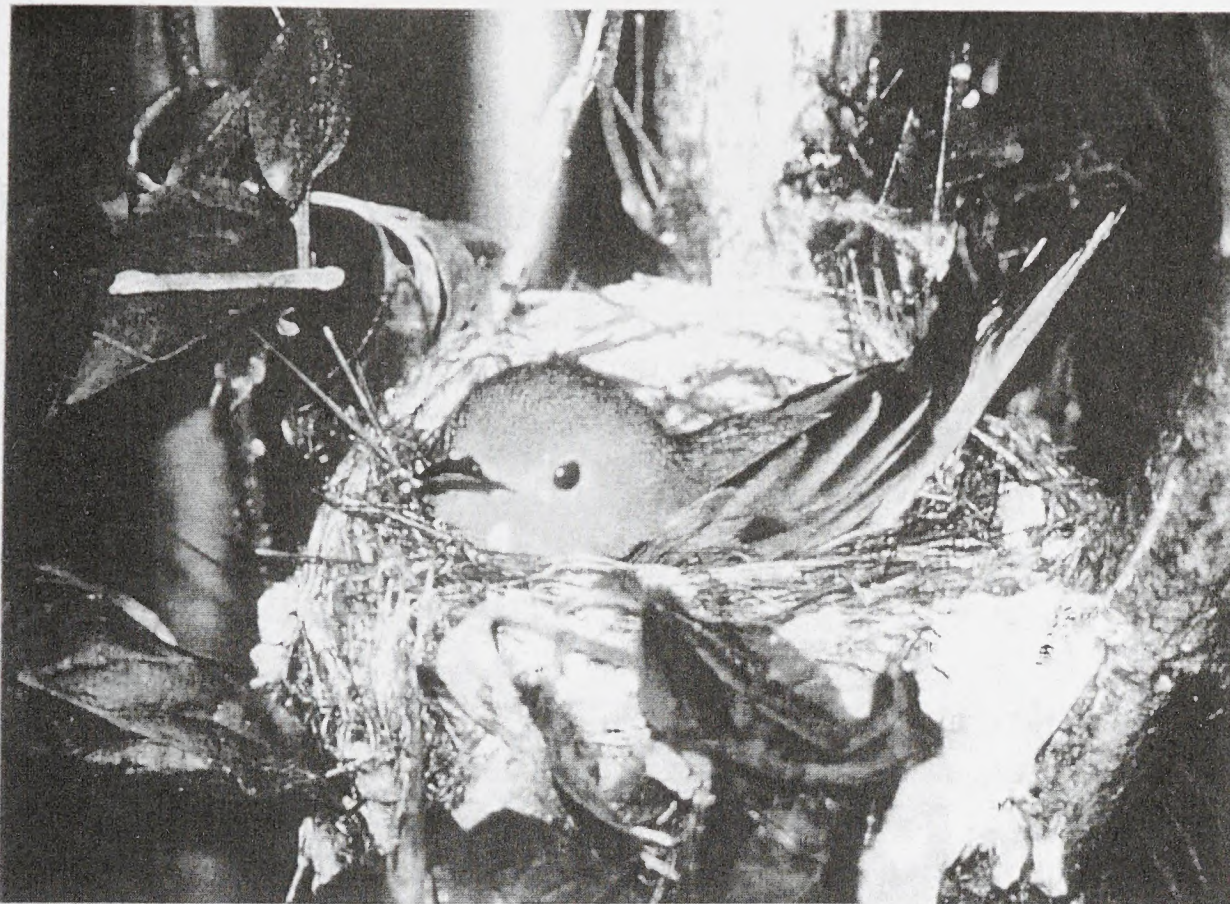


Figure 13. Female yellow warbler nesting in a riparian/wetland area.



Figure 14. Close-up view of a red-spotted toad from the Saratoga Springs area.



Two rare water dependent plant communities exist at Saratoga Spring and the lower Amargosa River. These include transmontane alkali marsh and alkali seep habitats. In a review of the California Natural Diversity Database, only ten alkaline seeps and seven alkaline marshes exist in records of the statewide database. The vegetation at Saratoga Springs and Valley Springs consists primarily of common reed, bulrush, and saltgrass (Bradley 1970, USFWS 1996). A limited amount of saltcedar is also present at Valley Springs.

Death Valley playa/Amargosa River delta: the presence of shallow ground water along the lower portion of the Amargosa River is most noticeable in the reach between Saratoga Springs and the Confidence Hills. This generality is based on the presence of a well-developed salt crust which persists even during the summer months. Shallow ground water may be present throughout most of the Death Valley playa, but appears to be most pronounced near the Furnace Creek alluvial fan and along the west side of Death Valley. Poor water quality and the diffuse quantity of water in both regions are not conducive to the presence of pupfish, amphibians, and most aquatic invertebrates. Moisture is abundant enough, however, to result in the noticeable occurrence of phreatophytic vegetation which requires a shallow source of ground water.

The riparian plant community on the Furnace Creek alluvial fan is particularly pronounced when viewed in contrast to the surrounding xeric landscape (Figure 15). Concentric rings that progress from east to west on the four-mile diameter fan contain distinct bands of honeybean mesquite, arrowweed, and saltgrass (Hunt 1966). This transition from one plant species to another is consistent with the relationship of species presence and depth to ground water. The eastern side of the alluvial fan has coarser soils and mesquite where depth to ground water is greater. Fine textured soils that tend to have elevated soil moisture are, in contrast, more prevalent on the west side of the fan where saltgrass is abundant.

The presence of riparian plant species along the Amargosa River delta has only received superficial study, but numerous phreatophytes including saltgrass, pickleweed, and common reed are known to be abundant in the area (USFWS 1996). This delta is approximately 20 miles long and three miles wide. Plant species distribution does not generally appear to be as orderly as what exists on the Furnace Creek alluvial fan. Overall density of phreatophytes along the delta is far greater than what is found on adjacent upland slopes (Figure 16). Phreatophyte survival in this area is probably the result of intermittent surface flows when the river is flooded, or through the presence of shallow ground water.

Soil moisture along the lower Amargosa River is sufficient to produce a distinctive white crust of salt deposits or alkali. The Death Valley June beetle is the only endemic animal that is known to occur in this area (Russell 1995).



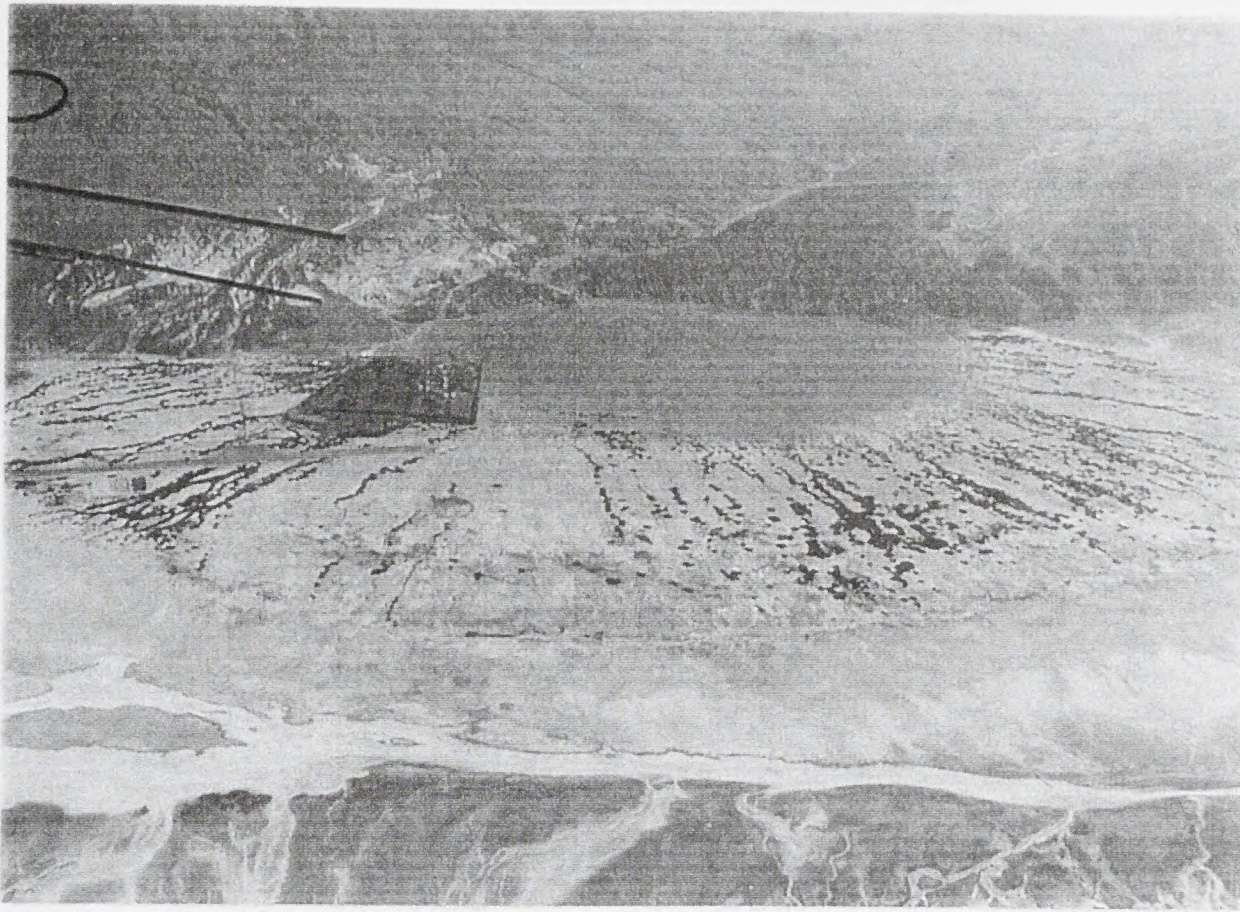


Figure 15. Aerial view of phreatophytic mesquites on the Furnace Creek alluvial fan. The presence of these plants is due to the presence of shallow ground water.



Figure 16. Contrasting view of xeric, plant deficient areas that are adjacent to areas which have shallow ground water and phreatophytes. Photo taken along the lower Amargosa River near Saratoga Spring.



## EFFECTS OF REDUCED GROUND WATER TABLES/SPRING DISCHARGE RATES

Reductions in spring discharge rates and the lowering of ground water tables have an ability to affect species through a variety of mechanisms. Two of the most basic impacts arise as a result of life history and ecological characteristics that are unique to each species or ecological guild/group. Biological organisms can also be affected by water withdrawals through broader community-scale impacts that involve habitat size and structure.

### Species or guild-specific water needs

The fact that every plant and animal species in the desert is dependent on some source of water is not a revolutionary concept. Each taxon or guild does tend, however, to have water needs which reflect unique ecological requirements or adaptations (Table 4).

The water dependence of fish is evident at the most basic level. None of the species in the western United States has evolved to withstand anything but a very brief removal from water. Much of this vulnerability arises because this group breathes through gills, lays eggs that can not survive desiccation, and possesses no ability to disperse across dry landscapes.

Amphibians in Death Valley National Park also depend on surface water for breeding purposes (Stebbins 1951). The presence of red-spotted toad tadpoles and eggs in the Travertine/Nevares Springs area has frequently been observed in slow moving streams or standing pools. These surface waters need not be permanent, but their presence and persistence for a minimum of 60 days during the breeding season is mandatory for successful reproduction (Wright and Wright 1949). Successful recruitment by this species in the Coachella Valley area has been found to be minimal in years when spring flow or flash floods were lacking (Tevis 1966).

Pacific tree frogs are also sensitive to the lack of water. In laboratory trials, the majority of animals died when humidities were held at 0% and temperatures were 77° F (Jameson 1966). The cause of mortality in the study was directly or indirectly due to desiccation as frogs lost 36 to 52% of their body weight by evaporative losses across the skin. In Death Valley, temperatures between 114 to 123° Fahrenheit and humidities less than 10-15% are common at lower elevations during the summer months. While animals in a field setting have behavioral mechanisms which minimize the effects of humidity and temperature extremes, the complete loss of water which sometimes accompanies ground water withdrawals or spring diversion activities has the potential to eliminate animals with unusually porous skin.

Death Valley aquatic invertebrates such as naucorids and riffle beetles are sensitive to water diversions for numerous reasons. Naucorids inside the Park boundary have particular habitat requirements that limit them to stream riffles that are swift enough to keep sand and silt from accumulating, but not so fast that coarse, gravelly substrates are removed (La Rivers 1948). The name "riffle beetle" is indicative of the species' preferred habitat. Riffle beetles rarely occur in



habitats that have seasonal flow, mud or sand substrates, or low oxygen content (Usinger 1956). Adult riffle beetles acquire their oxygen through a dense pile of hairs on their plastron underside. This method of respiration is efficient, but limits adult distribution to oxygen rich riffle habitats (White et. al. 1984). Reductions in stream flow could therefore be expected to affect naucorids and riffle beetles at Furnace Creek because both species have physiological limitations or habitat needs that rely on moderate water velocities.

**Table 4. Ecological traits which make individual species or ecological guilds vulnerable to reductions in water availability.**

Species/guild	Ecological/morphological characteristic	Inherent vulnerability
Pupfish	--Respiration through gills --Egg laying habit	--Requires aquatic habitats to breath --Eggs are unable to withstand desiccation
Red-spotted toad	--Egg laying habit	--Requires persistent water for egg/tadpole development
Pacific tree frog	--Highly permeable skin	--Capacity to loose large amounts of water
Bell's vireo	--Requires specific vegetation structure for breeding	--Optimum vegetation communities rarely occur outside wetland/riparian areas
Phainopepla	--Specific dietary preferences	--Relies on a vegetation community which is associated with shallow ground water
White-faced ibis	--Possesses specially modified bill	--Feeding is limited to moist substrates/water
Aquatic invertebrates		
Naucorids	--Prefers habitats with moderate stream flows	--Susceptible to reductions in spring discharge rates
Riffle beetles	--Vestigial wing pads	--Inability to disperse across dry landscapes to adjacent wetlands
Springsnails	--Respiration through gills	--Requires aquatic habitats to breath
Hydrophilic/ phreatophytic plants	--Seed germination requires saturated soils/standing water --Species-specific rooting characteristics	--Recruitment is limited to areas with specific hydrologic conditions --Plants have limited ability to follow ground water declines



Naucorids, riffle beetles, and springsnails also share a common characteristic that leaves them vulnerable to elimination of surface water. They are unable to disperse to other wetlands, even when the water sources are only a short distance apart. Riffle beetles and naucorids are unable to disperse to suitable habitat because they lack functional wings (Dr. John Polhemus, Arvada, CO and Dr. William Shepard, California State University, Sacramento, CA, pers. comm.). In springsnails, the inability to move between wetlands is partially due to respiration that involves gills. The inability to colonize disjunct habitats has rendered these animals extremely vulnerable to the elimination of surface waters. Entire species or populations of these animals in Texas and Mexico have been completely extirpated when springs went dry (Landye 1973). In a similar vein, the Bruneau Hot Springs snail in Idaho was relatively abundant prior to the onset of declines in spring discharge rates, and one area was estimated to have 75,000 individuals in 1982 (Taylor 1982). By 1991, the entire population was lost after the spring went dry from up-gradient ground water pumping (Bowler and Olmstead 1991).

Bird species depend on wetland or riparian areas for a variety of reasons. Many species use stands of vegetation which have particular structural components. In the case of the least Bell's vireo, the selection of breeding sites is oriented toward areas with 1) a dense shrub layer which helps to conceal nests, and 2) a structurally diverse canopy which facilitates foraging (Goldwasser 1981, Gray and Greaves 1981, Salata 1981). Vegetation characteristics such as these are rarely present in the Mohave Desert unless an abundant supply of surface or shallow ground water is present.

Other bird species rely on wetland and riparian areas because they have specialized diets that are only met in these environs. Phainopepla, for example, have a diet that is heavily dependent on mistletoe berries (Grinnell and Miller 1944, Garrett and Dunn 1981). The presence of mistletoe in the Death Valley area is usually limited to areas with mesquite. These plants are in turn limited to areas with shallow ground water. White-faced ibis are likewise specialized in their feeding preferences and have a bill that is only effective in searching for food in soft mud and shallow water (Cogswell 1977).

Plant species that rely on water are routinely classified into one of two categories according to their frequency of occurrence. Wetland obligate species are taxa which almost always occur under natural conditions in wetlands (estimated probability > 99%). Facultative wetland species usually occur in wetlands (estimated probability 67-99%), but occasionally occur in non-wetlands (Reed 1988). Examples of obligate wetland plant species include various varieties of bulrush, cattails, pondweed, and wiregrass. Facultative wetland species inside Death Valley National Park include taxa such as screwbean mesquite, mulefat, and wild grape. The USFWS is currently reviewing the habitat affinity of the spring-loving centaury, and this species may also be classified as a facultative wetland indicator at some point in the near future.



Obligate and facultative wetland plant species depend on water for a number of reasons. Some species have seeds that will only germinate with frequent or persistent exposure to moist soils or standing water. These same species normally have seedlings whose survival is dependent on reliable water conditions. Experimental studies of arroyo willows in northern Arizona, for example, showed that lack of soil moisture was the primary cause of mortality for seedlings during their first two years, and >75% of the seedlings died in unwatered plots (Sacchi and Price 1992). A similar relationship has been found with mule fat, sandbar willow, Fremont cottonwood, and red willow. All of these species were found to readily germinate on moist substrates, but recruitment was not successful if sandbars dried out (McBride and Strahan 1984). This same study also demonstrated that capillary movement of water above the water table could not maintain soil moisture levels that were sufficient to induce willow germination. Maintenance of a shallow ground water table in itself would not therefore be sufficient to insure successful recruitment of young plants, and maintenance of some surface water was essential for plant regeneration.

The presence of some phreatophytes is partly dependent on the depth at which ground water occurs. Some species such as saltgrass, pickleweed, and arrowweed are present when the water table is within 10 feet of the land surface. Mesquite, in contrast, may be indicative of ground water that is within 50 feet of the land surface (Meinzer 1927). Anthropogenic activities that have the potential to alter stable water table conditions therefore have a potential to negatively affect the presence and maintenance of wetland and aquatic macrophytes (Wilcox 1995).

The ability to develop an effective rooting structure varies between water dependent plant species. At least one species of mesquite has been found to possess some of the longest taproots of any phreatophyte, but the species is still susceptible to ground water declines. In southern Arizona, mesquites with large leaves, tall stature, and large vegetation volume were only present when ground water tables were within 16 feet of the land surface (Stromberg et. al. 1992). As water tables declined to greater depths, plants became increasingly stressed, and summer rains and seasonal surface flows were insufficient to restore plants to optimum condition. Some herbaceous species are even more sensitive to declining water tables. In the case of Juncus torreyi and Eleocharis montevidensis, even minor water level declines on the order of nine inches were found to result in sharp declines in plant abundance (Stromberg et. al. 1996). The ability of species to effectively follow declining water tables has finite limits, especially when younger plants are involved. Plains cottonwood seedlings, for example, had markedly reduced survivorship when water tables dropped at rates which exceeded 1/4 inch per day (Segelquist et. al. 1993).

#### Effects of habitat size on community biodiversity and structure/function

The size of a particular wetland has a significant influence on community biodiversity, form, and structure. Larger wetlands typically have a larger diversity of species than smaller habitats. This is best demonstrated in species-area curves which plot the number of species against increasing habitat size. In southern Ontario, larger systems have been found to have greater numbers of



plant, bird, herptile, and mammal species than smaller systems (Figure 17). A similar relationship has also been found in the Spring Mountains near Las Vegas, Nevada. Longer streams had more diverse aquatic insect, snail, amphibian, and vegetation assemblages than springs with shorter outflows (Sada and Nachlinger 1996). Water diversion activities that reduce the overall size of wetland or riparian areas would therefore tend to reduce the overall species diversity in a particular habitat. The reduction in species diversity is further compounded by the elimination of habitat which could be occupied, i.e. not only are there fewer species, but there tends to be fewer individuals of the species which do manage to persist.

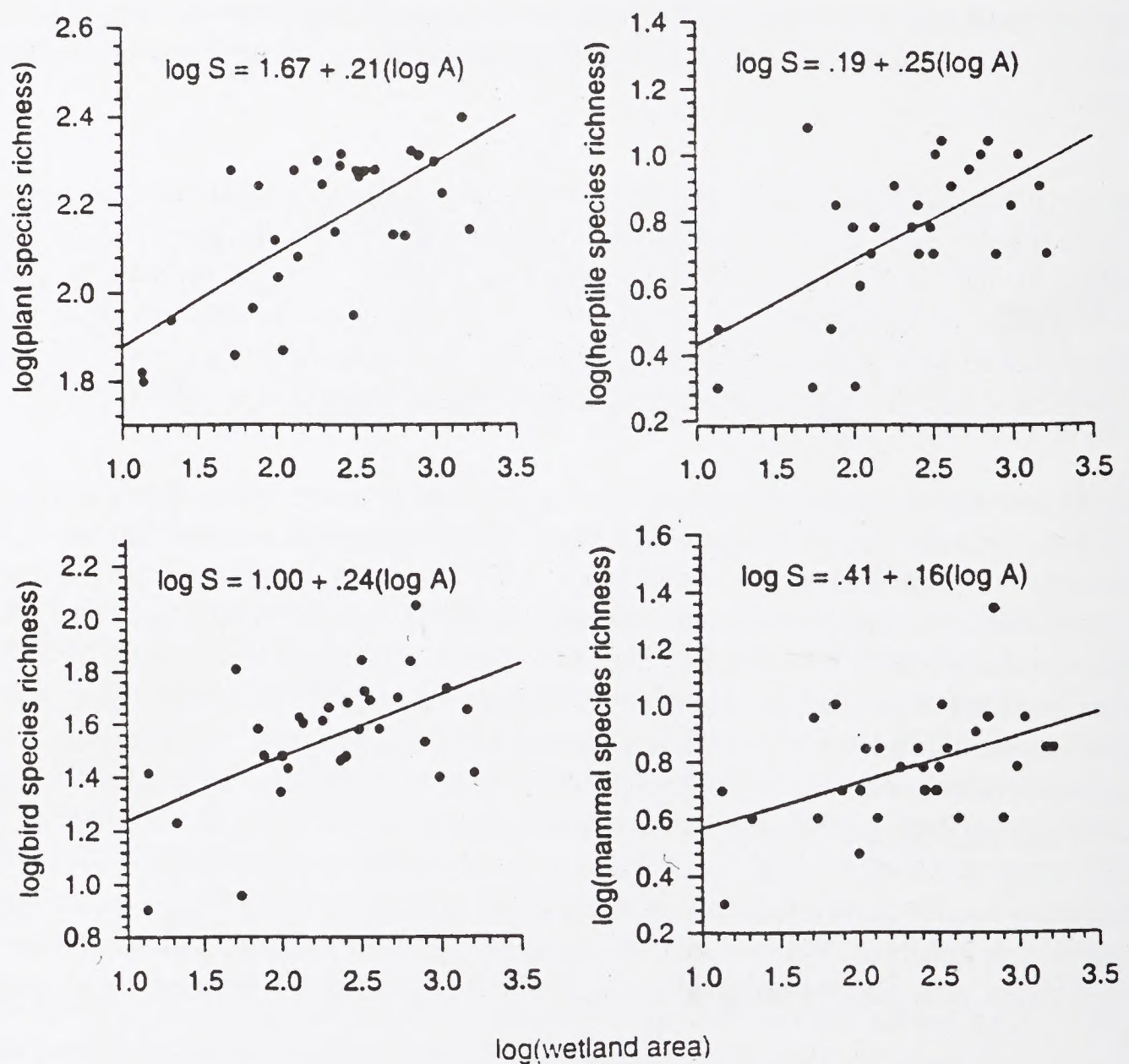


Figure 17. Species-area relationships for plants, birds, herptiles (reptiles and amphibians), and mammals in southeastern Ontario wetlands. The species-area relationships were statistically significant for all taxonomic groups:  $p = 0.002$  (birds),  $p = 0.01$  (mammals), and  $p < 0.001$  (herptiles and plants). Reproduced from Findlay and Houlihan (1997).



Reductions in water tables and spring flows have also been documented as having dramatic community-level impacts on biotic and hydrologic functions in water dependent habitats. Biotic functions are those which involve floral and fauna productivity, fish and wildlife habitat, native species diversity, and threatened and endangered species. Hydrologic functions are those which involve stream flow maintenance, ground water recharge and discharge, water supply, erosion and sediment control, water purification, and sediment transport to downstream systems.

Changes in these functions have the potential to have ripple effects through a wetland or riparian system. These impacts occur because biological species, abiotic components, and energy interact in a synergistic and integrated manner. It is difficult, if not impossible, to recreate or rehabilitate wetlands which have been affected by anthropogenic activities (Zedler, date unknown). Much of this difficulty arises because wetlands are complex systems (Zedler et. al. 1990), and there is a lack of inventories which document which components are present and how they interact when they are together.

The complex interaction between biotic and abiotic features has been documented in salt marshes in southern California (Beare and Zedler 1987, Griswold 1988, PERL 1990). As hydrologic regimes in these habitats have been altered by people, tidal cycles change. This in turn effects soil salinity levels, which in turn effects recruitment of salt sensitive plant species. Changes in plant composition may then alter habitat quality for species such as the federally endangered light-footed clapper rail. In short, even minor changes in water availability are apt to result in quantifiable impacts to biological organisms in water dependent habitats.

#### Case history study: the Devils Hole pupfish

The Devils Hole pupfish is, and will always be, an endangered or threatened species (USFWS 1990). This distinction is based on three separate, but interrelated facts that characterized the water-filled cavern where the species lives. These items can be listed as 1) the fish has a naturally occurring distribution which is entirely limited to Devils Hole, 2) the fish's spawning habitat is limited to a shallow shelf which is only covered by three to 20 inches of water, and 3) water over the spawning shelf is derived from an aquifer which is increasingly being impacted by ground water pumping activities. The convergence of these three factors nearly pushed the species into extinction in the late 1960's and early 1970's. The legal fight to save this fish helped to frame a U.S. Supreme Court ruling which stands as a cornerstone of endangered species protection (Deacon and Williams 1991).

Concern over the long-term persistence of the Devils Hole pupfish originally developed as a result of ground water pumping in the Ash Meadows area. As pumping began in earnest in 1969 and accelerated in 1971, the mean monthly water level over the shallow spawning shelf fell by two feet (Dudley and Larson 1976). As the water table declined, so did the number of fish (Figure 18). By the late summer of 1972, the species stood on the brink of extinction as the water level fell to a point where the spawning habitat was no longer covered with water.



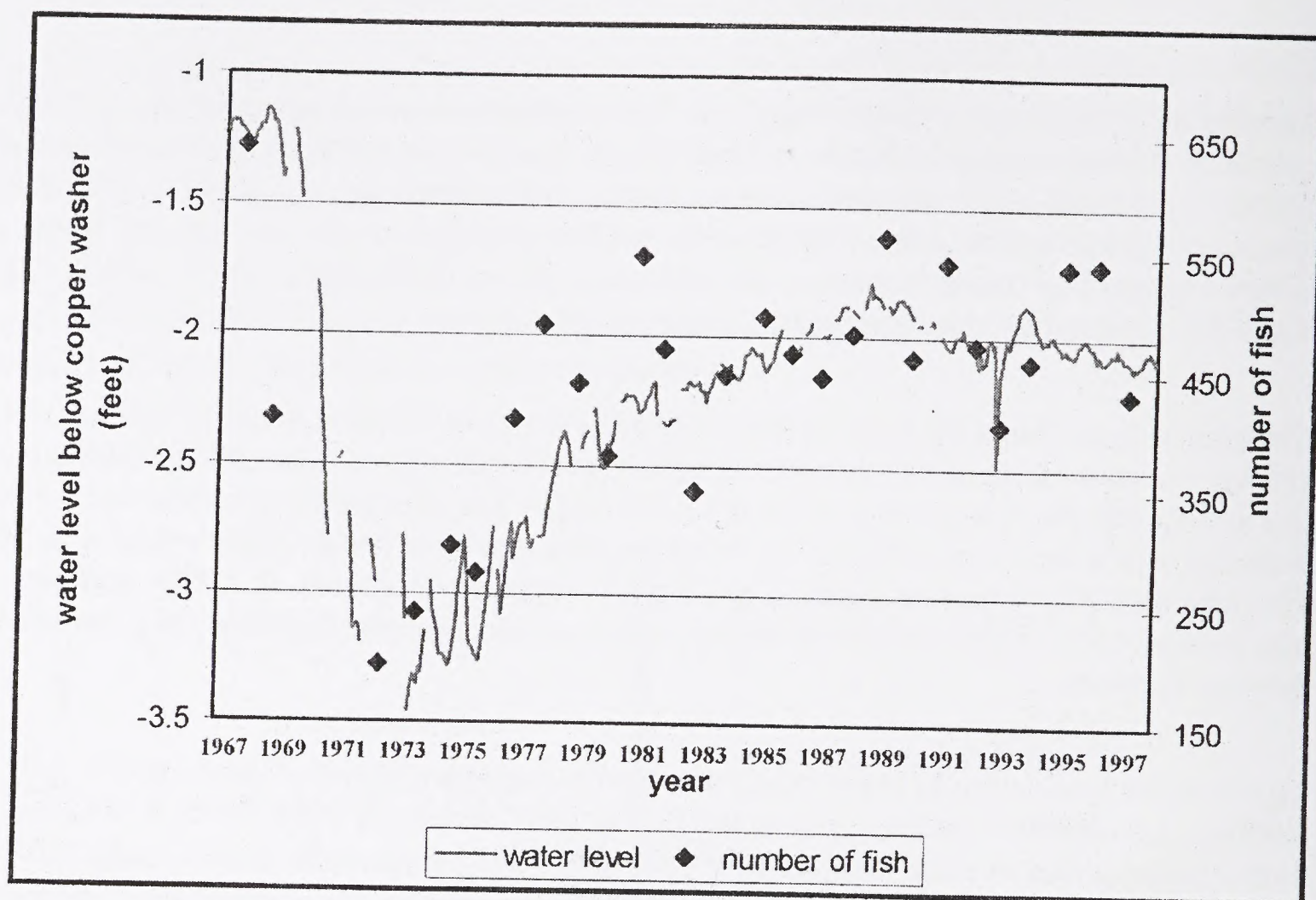


Figure 18. Relationship between Devils Hole pupfish numbers and the mean monthly water level over the spawning shelf. The water level is measured from a copper washer reference mark. Population data is derived from the highest monthly count in September or October in a given year.

Population censuses by biologists and concurrent studies of the local aquifer by hydrologists during the early 1970's clearly demonstrated the link between ground water pumping, the decline in the water level at the Hole, and the coincident decline in the number of Devils Hole pupfish (Dudley and Larson 1976, Deacon and Deacon 1979). This relationship was further demonstrated by the fact that the number of fish increased following the cessation of pumping activities and the return of water over the spawning shelf.

Devils Hole pupfish have three inherent ecological vulnerabilities. First, the stability of the pupfish population is inherently tied to the amount of water over the shallow spawning shelf. Without adequate submersion, the majority of the spawning shelf becomes exposed and potential for successful reproduction is reduced. While it is true that fish may be found as deep as 80 feet in the water column, eggs are apparently only able to hatch on the shallow shelf where periodic fluctuations in dissolved oxygen levels occur (Gustafson and Deacon 1997).

The second limitation the fish faces is also related to life history. Each fish only lives for about one year (James 1969, Deacon et. al. 1995). This fact results in a precarious persistence problem since successful reproduction must occur every year if the species is to survive. And lastly, adults



adults appear to have a limited ability to produce large numbers of young because they have a low fecundity rate (Minckley and Deacon 1973). While many pupfish taxa are able to produce large numbers of fry when environmental conditions are optimal, the Devils Hole pupfish appears to have a more limited ability to rebound from depressed population levels.

The combination of ground water pumping from the regional aquifer and the life history traits of the Devils Hole pupfish make the species extremely vulnerable to extinction. The sensitivity of the species to reduced water tables has been clearly demonstrated before, and the biology of the species suggests that the animal will react in an adverse manner again if the water table declines. While there is a limited ability to maintain artificial populations of the species in other areas, the explicit policy of the National Park Service is to "manage the natural resources of the national park system to maintain, rehabilitate, and perpetuate their inherent integrity" and that park staffs "will try to maintain all of the components and processes of naturally evolving park ecosystems" (NPS 1988, Chapter 4:1).

#### Case history study: the Pahrump and Las Vegas Valleys

The development of ground water and surface water resources in the Pahrump and Las Vegas Valleys of southern Nevada provides a classic example of how human activities have the potential to eliminate natural habitats and their associated species.

Development of ground water resources in the Pahrump Valley began in 1910 when the first well was drilled. By 1916, 28 wells were present (Waring 1921). The combined pumping from these wells reduced the discharge of Manse Spring from an estimated 2,700 gallons per minute (gpm) in 1877 to 1,477 gpm in 1916 (Maxey and Jameson 1948). Pumping activities also had the same effect on Bennetts Spring where discharge rates declined from an estimated 3,300 gpm in 1877 to 2,100 gpm in 1916. Between 1962 and 1975, an estimated 530,000 acre-feet of water was pumped from the aquifer. In some wells, the water level fell by as much as 60 feet (Harrill 1986). As pumping continued into the middle of the twentieth century, Bennetts Spring ceased to flow in 1959, and Manse Spring was dry during the irrigation season in 1975.

In a site visit during 1997, this author found that every trace of Bennetts Spring had been completely eliminated. Every drop of surface water was gone and the spring pool had been completely bulldozed and leveled. All of the riparian and wetland vegetation was absent, the spring outflow was gone, and the surrounding area had become dominated by Russian thistle.

And most significantly, all of the unique animal life that once existed had long since become extinct. The only indication that the spring ever existed was the presence of two well heads that appear to have been placed near the historical location of the spring orifice (Figure 19).





Figure 19. Appearance of the area near the historical location of Bennetts Spring in 1997. Every trace of the spring and its aquatic life have been completely eliminated, and the 3,300 gallon per minute surface flow that existed in 1877 is gone.

Manse Spring has fared only slightly better, and today the spring outflow consists of a ditch dug by a backhoe. The springpool has also been altered, and contains fetid water and some gold fish. This modern day appearance is in stark contrast to the pristine appearance of the pool in 1942 (Figure 20). Spring discharge from the orifice is intermittent or non-existent since local ground water wells are turned on periodically to irrigate nearby farm fields.

The biological ramifications of water diversion activities in the Pahrump Valley are extensive. The Raycraft Ranch poolfish and the Pahrump Ranch poolfish have become extinct. Ground water pumping activities have so modified the original habitat of the Manse Ranch poolfish that the species can no longer exist at its original locality (Courtenay and Deacon 1982, Miller et. al. 1989). The original spring outflows for all of the major springs in the valley have been completely eliminated and much of the surrounding area consists of golf courses or disturbed ground that is dominated by Bermuda grass, Russian knapweed, and alfalfa. The lush riparian and wetland plant communities that were apparent in early photos are completely gone, and bird use at the sites is minimal or dominated by European house finches and brown-headed cowbirds.

Major springs in the Las Vegas Valley have also been severely impacted by water diversion activities. Well drilling in this valley progressed at a rate that far exceeded the pace that





Figure 20. Manse Spring in 1942 (above) and 1997 (below). The cattails that are common in the recent photograph are a sign of disturbance. Note the pump on the right of the lower picture.



occurred in Pahrump. The first well in the Las Vegas Valley was drilled in 1905. By 1911, 100 deep and 25 shallow wells had been drilled (Maxey and Jameson 1948). The amount of water wasted as a result of the well drilling was so great that in 1911 the Nevada State Engineer suggested that artesian wells should be capped and water should be used "with economy instead of the lavish wasteful manner which has prevailed in the past" (Kearney 1911).

Pumping of water in the Las Vegas Valley continued unabated into the third quarter of the century. Between 1955 and 1974, 1,300,000 acre-feet of water were withdrawn from the valley fill aquifer (Harrill 1976). Between 1900 and 1973, the elevation of the principle aquifer had a net decline of as much as 240 feet. By 1975, the meadowlands that were the Las Vegas Valley's Spanish namesake were gone, and all three of the major springs in the valley had ceased to flow. The elimination of the combined spring discharges of Big, Middle, and Little Spring resulted in the loss of a stream that had originally flowed at the rate of almost 8,000 gallons per minute. As deep ground water pumping continues today, land subsidence is increasingly becoming a problem.

The environmental impact of the sustained ground water pumping in the Las Vegas Valley has resulted in the extinction of at least one amphibian, one fish, and an unknown number of invertebrate species (Miller 1984, Miller et. al. 1989, Jennings and Hayes 1994). The northernmost of the three large springs in the valley was permanently eliminated as U.S. Highway 95 was paved directly over the orifice. The vestige of Middle Spring is also threatened since the Nevada Department of Transportation has requested an easement to further enlarge the highway. The spring outflow from the three large springs was at least six miles long. Pictures of the spring orifices (Figure 21) demonstrate that the area had lush meadows and numerous cottonwood trees (Jones and Cahlan 1975). Today, the majority of the outflow is completely covered over by residential housing units and downtown Las Vegas. When this author visited the site of Middle Spring in October of 1997, the area did not even contain the stagnant pool of water which existed in 1983 (Miller 1984). The spring outflows of the middle and southern spring now consist of dry channels with large amounts of dead and down wood (Figure 22). Even human artifacts suggested the magnitude of the water loss. Wooden frames that stand over the top of abandoned well heads possess foundations that have crumpled from five feet of ground subsidence.

The permanent extinction of four vertebrate taxa and an unknown number of invertebrate species and the nearly complete destruction of the wetland and riparian areas at six different springs in the Las Vegas and Pahrump Valleys provides a clear example of how fragile these habitats are. It will be impossible to replace the plant and animal communities that existed at these sites for thousands of years, and it is unfortunate that their disappearance came in the few decades when they were surrounded by human habitations.





Figure 21. Appearance of Big Spring in the Las Vegas Valley, ca.1906. The spring is completely dry today.

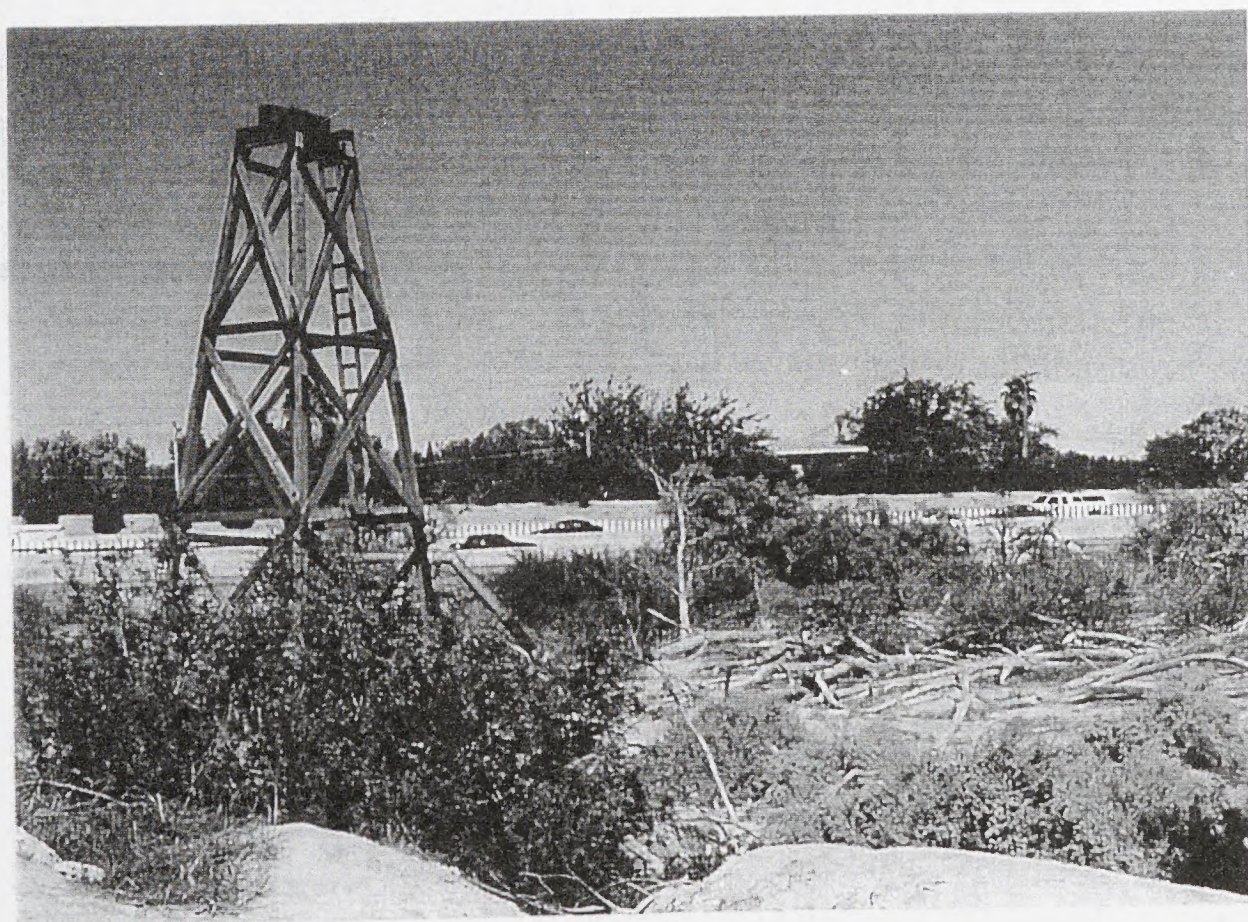


Figure 22. Appearance of the historical outflow of the Las Vegas Springs in 1997. Note the dry channel and the presence of dead and down wood. The wooden head frame marks the location of an abandoned well head.



## **FEDERAL GUIDANCE PERTINENT TO WETLAND PROTECTION AND PRESERVATION**

A variety of management policies, regulations, guidelines, executive orders, memoranda of understanding, and enabling legislation have text which relate to the need for wetland protection and preservation (Appendix C). Most of this material has been developed because there is a recognition that wetland and riparian habitats have unique and valuable resource values, and because these areas have been severely altered by human activity. A primary goal of most of these documents is to eliminate or minimize future impacts in these habitats, and to encourage federal agencies to restore degraded/impacted areas to the extent possible.

The United States Endangered Species Act is particularly germane to the Devils Hole and Travertine Springs areas since federal projects are prohibited from 1) jeopardizing the existence of any endangered or threatened species, or 2) engaging in activities which may result in the destruction or adverse modification of critical habitat of listed species. Hence, any proposed project on NPS or BLM land that has the potential to reduce the water availability at either site is subject to review by the U.S. Fish and Wildlife Service. Agencies are also required to implement management actions which will allow a species to be removed from the endangered species list.

## **SUMMARY AND MANAGEMENT IMPLICATIONS**

The presence of wetland and riparian areas in Death Valley National Park has created a biological laboratory that rivals the Galápagos Islands. Many of the unique species which inhabit the desert wetland "islands" are the product of thousands of years of evolution, and the presence of some predate the onset of the last ice age. Many of the species that exist in these rare and often widely separated habitats are unable to survive in more arid environments. The development of water resources for human use therefore has the potential to modify, drastically reduce, or even eliminate these unique biological communities.

Declining water levels at Devils Hole suggest that a critical period is fast approaching. Within the next ten to twenty years, the Devils Hole pupfish could once again be on the verge of extinction. Ground water pumping records and fish population data from the 1960's and 1970's provide irrefutable evidence that water level declines cause fish numbers to plummet. The past also provides a clear view of what the future holds, should water levels go below levels that were established by the U.S. Supreme Court. The battle to save this unique animal was only achieved when the NPS had adequate evidence to show that a resource was being affected, and the agency could identify the party that was causing the impacts.

Preservation of the Devils Hole pupfish and other locally rare plant and animal species will require a realization that water is a finite resource. Protection of the biological resources will also require a proactive and comprehensive strategy for addressing impacts that originate outside the Park



boundary. As the desert southwest moves into the twenty-first century, demands on ground water resources can only increase. Subsequent water level declines will affect more than the habitat at Devils Hole, and several dozen species will be susceptible to habitat losses or population declines. At the present time, the Park is only marginally prepared to respond to the challenges of protecting these hydrologic and biological resources.

If the National Park Service is to successfully defend its water dependent resources, baseline inventory and monitoring information for each spring that is fed by the regional aquifer will be required. The necessary data sets will require several years to acquire. Ecological life history information will also be needed so population declines can be tied to species-specific reactions to reduced water availability.

The amount of money which will be required to gather the information which is necessary to defend the NPS resources does not currently exist in the Park base budget. Numerous funding sources and a series of cooperative efforts with other agencies will be required to satisfy data needs. Most importantly, managerial staff at the park, regional, and national levels will need to fully support the data collection efforts. These same individuals will also need to play critical roles in supporting legal and administrative activities that are designed to ensure that external ground water pumping activities do not affect in-Park resources.

In many respects, the Devils Hole pupfish is a bell weather for 58 Death Valley species that are endangered, threatened, or rare. The fish is also a symbol of the National Park Service's past success in defending its resources, and benchmark for determining the agency's resolve to protect its resources in the future. The value of these resources strongly suggests that they are worth protecting, even when budgets and manpower constraints are a limiting factor.

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## APPENDIX A

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## APPENDIX B

### WATER DEPENDENT THREATENED, ENDANGERED, AND SENSITIVE SPECIES OF DEATH VALLEY NATIONAL PARK

The following list includes plant and animal species which occur in wetland and/or riparian habitats and meet one of the following criteria:

- they are considered to be endangered or threatened by the state of California or the federal government
- they are considered to be National Park Service "Sensitive Species"
- they are considered to be "Species of Special Concern" by the state of California
- they are endemic to the Death Valley area, or have an extreme dependence on wetland or riparian habitats

Note: this list is only meant to include species which occur in habitats that receive water from the Carbonate Rock Aquifer which originates east of Death Valley National Park.

#### KEY

##### FEDERAL STATUS

- FE = Federally listed as Endangered
- FT = Federally listed as Threatened
- SS = National Park Service "Sensitive Species"

##### CALIFORNIA STATE STATUS

- SE = State listed as Endangered
- ST = State listed as Threatened
- CSC = California Species of Special Concern; species which do not have legal protection status, but have been placed on the state watch list because of population declines or habitat loss

##### ENDEMISM

- I = Entire distribution occurs within the boundary of Death Valley National Park
- II = Entire distribution occurs within the Amargosa River drainage

##### DEATH VALLEY NATIONAL PARK WETLAND/RIPARIAN HABITAT OCCURRENCE

Species presence in particular wetlands in Death Valley National Park (DVNP) is listed where known. Location names are abbreviated according to the following code:

- DH = Devils Hole
- TS = Travertine/Nevares/Texas Springs complex (includes Furnace Creek Ranch)
- GS = Grapevine/Staininger/Surprise Springs complex
- KW = Keane Wonder Springs
- SS = Saratoga Spring
- VS = Valley Spring
- ?? = species-specific surveys have not been conducted for these taxa



# MAMMALS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Vespertilionidae</u>				
Townsend's big-eared bat <i>Plecotus townsendii townsendii</i>	SS	CSC		??
pallid bat <i>Antrozous pallidus</i>		CSC		??
fringed myotis <i>Myotis thysanodes</i>	SS			??
<u>Family: Geomyidae</u>				
Amargosa southern pocket gopher <i>Thomomys umbrinus amargosae</i>	SS	CSC	II	??

# FISH

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Cyprinodontidae</u>				
Devils Hole pupfish <i>Cyprinodon diabolis</i>	FE		I	DH
Saratoga Springs pupfish <i>Cyprinodon nevadensis nevadensis</i>		CSC	I	SS
Amargosa pupfish <i>Cyprinodon nevadensis amargosae</i>		CSC	II	VS
<u>Family: Cyprinidae</u>				
Amargosa Canyon speckled dace <i>Rhinichthys osculus ssp.</i>	SS		II	VS



BIRDS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Gaviidae</u>				
common loon <i>Gavia immer</i>		CSC		TS
<u>Family: Pelecanidae</u>				
white pelican <i>Pelecanus erythrorhynchos</i>		CSC		TS,SS
<u>Family: Phalacrocoracidae</u>				
double-crested cormorant <i>Phalacrocorax auritus</i>		CSC		TS
<u>Family: Ardeidae</u>				
western least bittern <i>Ixobrychus exilis hesperis</i>	SS	CSC		TS
<u>Family: Threskiornithidae</u>				
white-faced ibis <i>Plegadis chihi</i>	SS	CSC		TS,SS
<u>Family: Accipitridae</u>				
Cooper's hawk <i>Accipiter cooperi</i>		CSC		TS,SS
sharp-shinned hawk <i>Accipiter striatus</i>		CSC		TS
northern harrier <i>Circus cyaneus</i>		CSC		TS,GS
<u>Family: Panionidae</u>				
osprey <i>Pandion haliaetus</i>		CSC		TS



BIRDS (cont.)

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Falconidae</u>				
merlin <i>Falco columbarius</i>		CSC		TS
prairie falcon <i>Falco mexicanus</i>		CSC		TS,GS
<u>Family: Charadriidae</u>				
western snowy plover <i>Charadrius alexandrinus nivosus</i>	SS	CSC		SS
mountain plover <i>Charadrius montanus</i>	SS	CSC		TS
<u>Family: Scolopacidae</u>				
long-billed curlew <i>Numenius americanus</i>		CSC		TS,SS
<u>Family: Laridae</u>				
black tern <i>Chlidonias niger</i>	SS	CSC		TS
California gull <i>Larus californicus</i>		CSC		TS
<u>Family: Cuculidae</u>				
western yellow-billed cuckoo <i>Coccyzus americanus occidentalis</i>		SE		TS
<u>Family: Strigidae</u>				
short-eared owl <i>Asio flammeus</i>		CSC		TS
long-eared owl <i>Asio otus</i>		CSC		SS



BIRDS (cont.)

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
burrowing owl <i>Speotyto cunicularia</i>		CSC		TS
<u>Family: Tyrannidae</u>				
vermillion flycatcher <i>Pyrocephalus rubinus</i>		CSC		TS
<u>Family: Hirundinidae</u>				
bank swallow <i>Riparia riparia</i>		ST		TS
<u>Family: Mimidae</u>				
Crissal thrasher <i>Toxostoma crissale</i>		CSC		TS
Le Conte's thrasher <i>Toxostoma lecontei</i>		CSC		TS
<u>Family: Laniidae</u>				
loggerhead shrike <i>Lanius ludovicianus</i>	SS	CSC		TS,SS
<u>Family: Vironidae</u>				
least Bell's vireo <i>Vireo bellii pusillus</i>	FE	SE		TS,GS
<u>Family: Parulidae</u>				
yellow warbler <i>Dendroica petechia</i>		CSC		TS,SS
yellow-breasted chat <i>Icteria virens</i>		CSC		TS



### BIRDS (cont.)

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Icteridae</u>				
tricolored blackbird <i>Agelaius tricolor</i>	SS	CSC		TS
<u>Family: Thraupidae</u>				
summer tanager <i>Piranga rubra</i>		CSC		??

### AMPHIBIANS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Bufonidae</u>				
red-spotted toad <i>Bufo punctatus</i>				TS,GS,SS
<u>Family: Hylidae</u>				
Pacific tree frog <i>Hyla regilla</i>				GS,SS

### INSECTS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Elmidae</u>				
Furnace Creek riffle beetle <i>Microcyllloepus formicoideus</i>	SS		I	TS
un-named riffle beetle <i>Microcyllloepus similis</i>	SS			TS,GS
Devils Hole riffle beetle <i>Stenelmis calida calida</i>	SS		II	DH



# INSECTS (cont.)

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Scarabaeidae</u>				
Death Valley June beetle <i>Polyphylla erratica</i>	SS		II	SS
<u>Family: Cicindelidae</u>				
un-named tiger beetle <i>Cicindela californica pseudoerronea</i>			II	SS
<u>Family: Belostomatidae</u>				
Saratoga Springs belastoma bug <i>Belostoma saratogae</i>	SS			SS
<u>Family: Naucoridae</u>				
Furnace Creek naucorid bug <i>Ambrysus funebris</i>	SS		I	TS
Amargosa naucorid bug <i>Pelocoris shoshone amargosus</i>	SS			SS
creeping water bug <i>Pelocoris biimpressus shoshone</i>	SS			GS

# SNAILS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Assimineidae</u>				
Badwater snail <i>Assiminea infima</i>	SS		I	TS
<u>Family: Hydrobiidae</u>				
Amargosa springsnail <i>Pyrgulopsis amargosae</i>	SS		II	SS



SNAILS (cont.)

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
Oasis Valley springsnail <i>Pyrgulopsis micrococcus</i>	SS			GS
robust tryonia <i>Tryonia robusta</i>	SS		I	TS
Grapevine Springs elongate tryonia <i>Tryonia margae</i>	SS		I	GS
Grapevine Springs squat tryonia <i>Tryonia rolandsi</i>	SS		I	GS
Amargosa tryonia <i>Tryonia variegata</i>	SS		II	DH,SS

ARTHROPODS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
Texas Springs amphipod <i>Hyalella sp.</i>			I	TS

PLANTS

	FED STATUS	CA STATUS	ENDEMISM	DVNP WETLAND OCCURRENCE
<u>Family: Gentianaceae</u>				
spring-loving centaury <i>Centaurium namophilum</i>	FT		II	TS



## APPENDIX C

### FEDERAL GUIDANCE PERTINENT TO WETLAND PROTECTION AND PRESERVATION IN DEATH VALLEY NATIONAL PARK

A variety of management policies, regulations, guidelines, executive orders, memoranda of understanding, and enabling legislation have text which relate to the need for wetland protection and preservation. This appendix is intended to be a brief synopsis for some of the documents which relate to Death Valley National Park.

- 1) National Park Service Organic Act (1916): this act created the National Park Service, and states that NPS management will "...conserve the scenery and the natural and historic objects and the wildlife therein...and by such means as will leave them unimpaired...".
- 2) Presidential Proclamation [No. 2028-Feb. 11, 1933-Stat. 2554]: this presidential proclamation was the legislation that established Death Valley National Monument, and states that the Monument was set aside for the "...preservation of the unusual features of scenic, scientific, and educational interest therein...".
- 3) California Desert Protection Act of 1994: this is the act which was passed by the United States Congress to formally establish Death Valley National Park. One of the primary intents of Congress in passing the legislation was to "preserve unrivaled scenic, geologic, and wildlife values associated with these unique landscapes" and to "perpetuate in their natural state significant and diverse ecosystems of the California desert".
- 4) Endangered Species Act (ESA) of 1973: under this law, the federal agencies have a mandatory responsibility to ensure that their activities (authorized, funded, or carried out) will not jeopardize the existence of any endangered or threatened species, or result in the destruction or adverse modification of critical habitat of those species. For Death Valley National Park, the ESA primarily relates to the federally endangered Devils Hole pupfish and federally threatened spring-loving centaur, but the ESA also is germane to the Ash Meadows National Wildlife Refuge since 11 endangered or threatened species are present on this property 15 miles east of the Park boundary. Federal agencies also have an obligation to conserve listed species. This implies that Interior bureaus should implement management actions that recover listed plants and animals.



5) NPS Management Policies (1988): this document contains policy guidelines which are to be used in managing the national parks and monuments. Text in the document states that "The [NPS] will seek to perpetuate surface and ground waters as integral components of park aquatic and terrestrial ecosystems. Park waters, either surface waters or groundwaters, will be withdrawn for consumptive use only where such withdrawal is absolutely necessary...and when studies show that it will not significantly alter natural processes and ecosystems" (Chapter 4:15). Also, "the [NPS] will identify and promote conservation of all federally threatened, endangered, and candidate species within park boundaries and their critical habitats... and ... These species and their critical habitats will be considered in NPS planning activities" (Chapter 4:11).

6) NPS-77, Natural Resources Management Guideline: this document provides guidelines for managing resource values in the national parks and monuments. Major program objectives for natural resources will "ensure that park operations do not adversely impact endangered, threatened, candidate, or sensitive species...within or outside the park" (Chapter 2:271). Also, "Parks are required to avoid any action with the potential for adversely impacting wetlands where there is a "practicable alternative" (Chapter 2:80) and "the superintendent includes aquatic resources information and assessments in all...planning activities" (Chapter 2:87).

7) Executive Order 11990 Protection of Wetlands (1977): directs federal agencies to "avoid to the extent possible the long and short term adverse impacts associated with the destruction or modification of wetlands..."

8) NPS Floodplain Management and Wetland Protection Guidelines (1980): provides National Park Service guidance for compliance with Executive Order 11990. Document text recognizes the relationship between water diversion activities and effects at disjunct areas. Non-discretionary directives in the document state that proposed projects will evaluate and minimize impacts and preserve and enhance wetland functions and values.

9) Candidate Species Memorandum of Understanding (1994): signatories include the NPS and several bureaus in the Departments of Interior, Agriculture, and Commerce. Collectively, the bureaus agree to "work together to achieve a common goal of conservation of selected [candidate] species...through protection and management of their habitats...". The Category 2 Candidate species classification was abolished in 1996, and the NPS now considers these taxa to be NPS "Sensitive Species".

10) Springsnail Memorandum of Understanding (1998): signatories include the NPS and several bureaus in the Departments of Interior and Agriculture, the Smithsonian Institution, and The Nature Conservancy. The signatories collectively agree to "...direct personnel to manage lands for the conservation of springsnails and their habitats." Signatories will also "develop protocols and methodologies for conservation of springsnail sites."



## APPENDIX D

### LIST OF SCIENTIFIC AND COMMON NAMES OF SPECIES WHICH OCCUR IN THIS REPORT

#### Mammals

<u>Common Name</u>	<u>Scientific Name</u>
Nelson bighorn sheep	<u>Ovis canadensis nelsoni</u>

#### Birds

<u>Common Name</u>	<u>Scientific Name</u>
brown creeper	<u>Certhia familiaris</u>
brown-headed cowbird	<u>Molothrus ater</u>
Cooper's hawk	<u>Accipiter cooperi</u>
European house finch	<u>Passer domesticus</u>
least Bell's vireo	<u>Vireo bellii pusillus</u>
light-footed clapper rail	<u>Rallus longirostris</u>
long-billed curlew	<u>Numenius americanus</u>
long-eared owl	<u>Asio otus</u>
phainopepla	<u>Phainopepla nitens</u>
summer tanager	<u>Piranga rubra</u>
western snowy plover	<u>Charadrius alexandrinus nivosus</u>
white-faced ibis	<u>Plegadis chihi</u>
yellow-billed cuckoos	<u>Coccyzus americanus</u>
yellow warbler	<u>Dendroica petechia</u>



## Fish

<u>Common Name</u>	<u>Scientific Name</u>
Amargosa pupfish	<u>Cyprinodon nevadensis amargosae</u>
Amargosa Canyon speckled dace	<u>Rhinichthys osculus ssp.</u>
Devils Hole pupfish	<u>Cyprinodon diabolis</u>
goldfish	<u>Carassius auratus</u>
Manse Ranch poolfish	<u>Empetrichthys latos latos</u>
Pahrump Ranch poolfish	<u>Empetrichthys latos pahrump</u>
Raycraft Ranch poolfish	<u>Empetrichthys latos concavus</u>
Saratoga Springs pupfish	<u>Cyprinodon nevadensis nevadensis</u>
Shoshone pupfish	<u>Cyprinodon nevadensis shoshone</u>
Tecopa pupfish	<u>Cyprinodon nevadensis calidae</u>

## Amphibians

<u>Common Name</u>	<u>Scientific Name</u>
Pacific tree frog	<u>Hyla regilla</u>
red-spotted toad	<u>Bufo punctatus</u>
western toad	<u>Bufo boreas</u>

## Invertebrates

<u>Common Name</u>	<u>Scientific Name</u>
Amargosa naucorid bug	<u>Pelocoris shoshone amargosus</u>
Amargosa springsnail	<u>Pyrgulopsis amargosae</u>
Amargosa tryonia snail	<u>Tryonia variegata</u>
Badwater snail	<u>Assiminea infima</u>
Death Valley June beetle	<u>Polyphylla erratica</u>
Devils Hole riffle beetle	<u>Stenelmis calida calida</u>
Furnace Creek naucorid bug	<u>Ambrysus funebris</u>
Furnace Creek riffle beetle	<u>Microcylloepus formicoideus</u>
Grapevine Springs elongate tryonia	<u>Tryonia margae</u>
Grapevine Springs squat tryonia	<u>Tryonia rolandsi</u>
Oasis Valley springsnail	<u>Pyrgulopsis micrococcus</u>
robust tryonia snail	<u>Tryonia robusta</u>
Saratoga Springs belostoma bug	<u>Belostoma saratogae</u>
Texas Springs amphipod	<u>Hyallela sp.</u>
tiger beetle	<u>Cicindela sp.</u>



## Plants

<u>Common Name</u>	<u>Scientific Name</u>
alfalfa	<u>Medicago sativa</u>
arrowweed	<u>Pluchea sericea</u>
arroyo willow	<u>Salix lasiolepis</u>
Ash Meadows lady's tresses orchid	<u>Spiranthes infernalis</u>
Bermuda grass	<u>Cynodon dactylon</u>
bulrush	<u>Scirpus</u> sp.
cattail	<u>Typha domingensis</u>
common reed	<u>Phragmites australis</u>
cottonwood	<u>Populus fremontii</u>
date palm	<u>Phoenix dactylifera</u>
fan palm	<u>Washingtonia filifera</u>
Fremont cottonwood	<u>Populus fremontii</u>
honeybean mesquite	<u>Prosopis glandulosa</u>
mistletoe	<u>Phoradendron californicum</u>
mulefat	<u>Baccharis</u> sp.
pickleweed	<u>Allenrolfea occidentalis</u>
Plains cottonwood	<u>Populus deltoides</u>
pondweed	<u>Potamogeton</u> sp.
red willow	<u>Salix laevigata</u>
Russian knapweed	<u>Centaurea repens</u>
Russian thistle	<u>Salsola</u> sp.
saltcedar	<u>Tamarix ramosissima</u>
saltgrass	<u>Distichlis spicata</u>
sandbar willow	<u>Salix hindsiana</u>
screwbean mesquite	<u>Prosopis pubescens</u>
spring-loving centaury	<u>Centaurium namophilum</u>
wild grape	<u>Vitis girdiana</u>
wire-grass	<u>Juncus</u> sp.



**Curriculum Vitae**  
**for**  
**DOUGLAS L. THRELOFF**

**College Education**

Bachelor of Science degree, Fish and Wildlife Biology. 1982.  
Michigan State University, East Lansing, Michigan.

**Work Experience**

Developed Endangered Species Act Section 7 consultations; designed and executed surveys to evaluate pupfish habitat conditions and population levels; quantified stream discharge measurements and groundwater levels; conducted baseline studies to evaluate population status and threats for endangered, threatened and rare plants; developed habitat restoration plans; developed scopes of work and coordinated field activities for plant and animal contractors; conducted radio telemetry surveys for bighorn sheep; produced numerous technical reports on rare plants, fish, amphibians, and aquatic invertebrates; designed and conducted field surveys to document habitat conditions and evaluate potential threats in wetland areas; developed field survey techniques to ground truth National Wetland Inventory maps; used global position system (GPS) and geographic information system (GIS) equipment to map habitat features in a variety of field settings; written resource funding requests which successfully captured \$255,000; developed, supervised, and implemented resource management or inventory/monitoring projects that cost \$568,000 between 1992 and 1998.

**Employment History**

October 1992 to present. Natural Resource Specialist. Department of the Interior, National Park Service, Death Valley National Park, Death Valley, CA.

May 1989 through September 1992. Fish and Wildlife Biologist. Department of the Interior, U.S. Fish and Wildlife Service, Ash Meadows National Wildlife Refuge, Pahrump, NV.

October 1988 through April 1989. Fisheries Biologist. Department of the Interior, U.S. Fish and Wildlife Service, North Attleboro National Fish Hatchery, North Attleboro, MA.



### **Employment History (cont.)**

January 1987 through September 1988. Fisheries Technician. Department of the Interior, U.S. Fish and Wildlife Service, Jones Hole National Fish Hatchery, Vernal, UT.

April 1986 through December 1986. Biological Technician. U.S. Fish and Wildlife Service, Hammond Bay Biological Research Station, Millersburg, MI.

April 1985 through March 1986. Biological Technician. U.S. Fish and Wildlife Service, Ludington Biological Station, Ludington, MI.

June 1984 through March 1985. Biological Technician. Department of Defense, China Lake Naval Weapons Center, China Lake, CA.

### **Publications**

Threloff, D.L. 1992. The distribution and abundance of the fishes of Ash Meadows: a preliminary inventory. *Proceedings of the Desert Fishes Council*, XXII:31.

Barrett, P.J., and D.L. Threloff. 1993. Recent water level fluctuations in Devils's Hole, Death Valley National Monument. *Proceedings of the Desert Fishes Council*, XXIV:26.

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### **Agency Reports**

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Threloff, D.L. 1991. Threatened and endangered species use of a restored marsh on the Ash Meadows National Wildlife Refuge. Report prepared for the U.S. Fish and Wildlife Service, Ash Meadows National Wildlife Refuge, Nevada. 22 pp. + 4 appendices.



# OVERVIEW OF WATER RIGHTS

## DEATH VALLEY NATIONAL PARK AND PROPOSED RESERVATION SITES FOR THE TIMBISHA SHOSHONE TRIBE

October 1997

National Park Service  
Water Resources Division  
Water Rights Branch  
Fort Collins, Colorado



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## OVERVIEW OF WATER RIGHTS

### DEATH VALLEY NATIONAL PARK AND PROPOSED RESERVATION SITES FOR THE TIMBISHA SHOSHONE

#### INTRODUCTION

The California Desert Protection Act of 1994 (P.L. 103-433, passed October 31, 1994), Section 705 (b) (1) states "...the Timbisha Shoshone Tribe and relevant Federal Agencies shall conduct a study ... to identify lands suitable for a reservation." Staff of Death Valley National Park (DEVA)--concerned about the scarcity and competition for water in the region, as well as the possibility of impact to water rights and water-related resources resulting from upgradient water development--identified the need for a water availability analysis as part of the suitability study. A draft Land Suitability Study prepared in 1996 included provision for the water availability analysis (See August 8, 1996, Memorandum, to Chief, Water Rights Branch).

The Superintendent, DEVA, requested that the Water Rights Branch prepare a water rights assessment, which -- along with other reports prepared by or at the request of DEVA -- constitute a water availability analysis for four proposed reservation sites. This water rights assessment describes (1) the United States water rights at DEVA, which may be affected by water development associated with water diversion and use at the four proposed reservation sites, and (2) general water conflicts in the Death Valley ground-water flow system, which underlies part or all of the proposed reservation lands.

Water rights of the United States, National Park Service (NPS) at DEVA (1) within the Death Valley ground-water flow system<sup>1</sup> (flow system), and (2) potentially affected by selection of proposed Timbisha Trust Lands and associated water diversion and use; include Federal reserved water rights, state appropriative rights, and riparian rights. With the exception of reserved rights to Devils Hole and state licensed rights (described below) the precise nature and extent of the NPS's water rights will likely remain uncertain until the United States is joined in an adjudication, the Department of Justice files claims to water rights on behalf of the NPS, and the court decrees the United States rights. Although not adjudicated, the NPS's Federal reserved rights in the Furnace Creek area, along with the water rights of Fred Harvey, Inc. (who owns two tracts of land within the park), are the subject of a Congressionally authorized agreement between the parties.

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<sup>1</sup> For a description of the flow system, please refer to reports prepared by Bedinger and Harrill included in this report.



## FEDERAL RESERVED WATER RIGHTS

Federal reserved water rights arise from the purposes for the reservation of land by the Federal Government. When the Federal Government reserves land for a particular purpose, it also reserves, by implication, enough unappropriated water at the time of the reservation as is necessary to accomplish the purposes for which Congress or the President authorized the land to be reserved, without regard to the limitations of State law. The rights vest as of the date of the reservation, whether or not the water is actually put to use, and are superior to the rights of those who commence the use of water after the reservation date.

The NPS Organic Act describes the fundamental purpose of NPS units such as DEVA, "...to conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations."

Death Valley National Monument was established in 1933 "...for the preservation of the unusual features of scenic, scientific, and educational interest therein contained" (Presidential Proclamation 2028, 47 Stat. 2554, February 11, 1933). The monument was expanded in 1937, adding areas of historic and scientific interest. With passage of the California Desert Protection Act of 1994 (P.L. 103-433, October 31, 1994), the monument was made a park, the boundaries enlarged, and wilderness designation applied.<sup>2</sup>

Section 706 of the 1994 Act addresses Federal reserved water rights. Congress expressly reserved "...with respect to each wilderness area designated by this Act...a quantity of water sufficient to fulfill the purposes of this Act. The priority date of such reserved water rights shall be the date of enactment of this Act."<sup>3</sup>

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<sup>2</sup> Section 2(b) of the Desert Protection Act of 1994 states: "...[I]t is hereby declared to be the policy of the Congress that -- (1) appropriate public lands in the California desert shall be included within the National Park System and the National Wilderness Preservation System, in order to --

- (a) preserve unrivaled scenic, geologic, and wildlife values associated with these unique natural landscapes;
- (b) perpetuate in their natural state significant and diverse ecosystems of the California desert;
- (c) protect and preserve historical and cultural values of the California desert associated with ancient Indian cultures, patterns of western exploration and settlement, and sites exemplifying the mining, ranching and railroading history of the Old West;
- (d) provide opportunities for compatible outdoor public recreation, protect and interpret ecological and geological features and historic, paleontological, and archeological sites, maintain wilderness resource values, and promote public understanding and appreciation of the California desert; and
- (e) retain and enhance opportunities for scientific research in undisturbed ecosystems."

<sup>3</sup> Section 706 (b) and (c) state:

- "(b) The Secretary and all other officers of the United States shall take all steps necessary to protect the rights reserved by this section, including the filing by the Secretary of a claim for the quantification of such rights in any present or future appropriate stream adjudication in the courts of the State of California in which the United



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States is or may be joined in accordance with section 208 of the Act of July 10, 1952 (66 Stat. 560, 43 U.S.C. 666), commonly referred to as the McCarran Amendment.

(c) Nothing in this Act shall be construed as a relinquishment or reduction of any water rights reserved or appropriated by the United States in the State of California on or before the date of enactment of this Act."



### Furnace Creek Area

The Act of July 2, 1958 (P.L. 85-495; 72 Stat. 295) authorized the Secretary of the Interior to "...enter into an agreement with the Death Valley Hotel Company, Ltd., or its successors, defining, fixing and establishing the respective rights of the Death Valley Hotel Company, Ltd., or its successors, and the United States, as between themselves, to the use of the waters available from Texas Springs, Furnace Creek Wash and its tributaries, including Travertine Springs, and other waters in the vicinity thereof in said Death Valley National Monument..."

A report concerning Death Valley National Monument, Furnace Creek Area-Water Rights and Related Matters (89th Congress, 1st Session, House Report No. 193), by the Committee on Government Operations describes water availability and rights in the Furnace Creek Area.

According to the Report, the Committee's investigations eventually resulted in the Interior Department's Solicitor preparing a legal opinion (June 23, 1964), concluding " '...for the purposes of negotiation you may authorize the Park Service to recognize appropriative rights [of the Company] in the waters of Furnace Creek, Travertine Springs, and Texas Springs in the aggregate of 1.914 cubic feet per second and to riparian rights not to exceed 0.15 cubic foot per second," and that "...any balance of the water supply available in the area under consideration must be deemed to be reserved to the United States.... The federally reserved waters are now dedicated to monument-oriented purposes.' "

The NPS and Fred Harvey, Inc. (successor to the Death Valley Hotel Company, Ltd.) entered an "Agreement Respecting Land and Water Rights" and an "Agreement Conveying and Determining Water Rights (Short Form)" in 1969. The United States agreed that Fred Harvey, Inc., has appropriative water rights totaling 1.914 cubic feet per second in the Furnace Creek area of the park which are "...prior and superior to any rights of United States in and to the waters from such sources", and a riparian right of 0.15 cubic feet per second which "...shall not be diminished by any exercise by United States of any claimed riparian or other right". These are collectively referred to in the agreement as Fred Harvey Inc.'s "entitlement".<sup>4</sup> Fred Harvey, Inc. agreed "United States will, as between Harvey and United States, own and possess all water rights of every kind and nature in and to all water available from the sources set forth in Paragraph 3.1 above, excepting and exclusive of Harvey's entitlement."

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<sup>4</sup> The agreement also contains provision for sale of water to Fred Harvey, Inc. In addition to Harvey's "entitlement," the United States may sell 0.536 cubic feet per second unless any or all of the 0.536 cfs is required for the needs of the United States. This is referred to as "fixed sale water." If Harvey requests, the United States may sell water to Harvey in excess of the "entitlement" and the "fixed sale" water if there is water available "not then being used by the United States or committed by it for use by others..." This is referred to as "excess sale water".



## Devils Hole

In January 1952, Devils Hole was added to the monument because "...the said pool...is unusual among caverns...and...in this pool...a peculiar race of desert fish...which is found nowhere else in the world, evolved..." (Presidential Proc. 2961, 66 Stat. c. 18, 17 Fed Reg. 691). In the early 1970's, in response to nearby ground-water pumping, the pool level in Devils Hole rapidly declined. In August 1971, the United States filed suit in Federal District court seeking the cessation of pumping from specific wells and asking the court to determine and decree that the United States has reserved water rights necessary to maintain the pool and desert pupfish population therein. The case was appealed to the U.S. Supreme Court who held that the United States has reserved rights in Devils Hole with a priority date as of the date of the reservation (1952). The U.S. District Court, in 1978, issued a permanent injunction to limit nearby ground-water pumping so that the mean daily pool level at Devils Hole does not drop below a level 2.7 feet from the established water level datum (a copper washer).<sup>5</sup>

## STATE WATER RIGHTS IN CALIFORNIA

### Appropriative

Appropriative water rights in California are based on the principle that the party who first appropriates the water (applies it to a beneficial use) has a prior right to use, as against all later appropriators. The doctrine is commonly called "first in time, first in right." Beneficial use, as defined by the State of California, includes municipal, irrigation, recreation, preservation and enhancement of fish and wildlife resources, and other uses (California State Water Resource Control Board, 1987, Sec. 659). An appropriative water right is a property right; under State law it can generally be purchased, sold, and its place of use, purpose, and point of diversion may be changed without loss of priority provided there is no injury to the water rights of others and environmental impacts are adequately mitigated.

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<sup>5</sup> As the nearby pumping was reduced and eventually ceased, the pool level gradually recovered, reaching a high in early 1988. Afterwards, the pool level apparently began a gradual decline. NPS in 1992 initiated an annual workshop (1) to solicit advice from water scientists regarding the cause(s) of this recent gradual decline, and (2) to provide a forum for the scientists to present and discuss their hydrologic investigations in the Death Valley region. Seven workshops have been held. At the first workshop, the participants proposed possible causes for the decline, which led to several investigations and data-collection programs. Distant ground-water pumping causing or contributing to the decline remains a distinct possibility.



There are two types of appropriative water rights in the State of California -- pre-1914 and licensed (post-1914) rights. Water rights based on appropriation prior to December 19, 1914 (the date of passage of the 1914 Water Commission Act) are "pre-1914" rights. Generally, pre-1914 water rights are claimed and documented in a water rights adjudication. Unless a water rights adjudication has occurred, it is difficult to ascertain the existence and extent of pre-1914 appropriative water rights on a stream system. Pre-1914 appropriative rights of the United States, DEVA, were not inventoried for the purposes of this report. Such rights may have been acquired by the United States with the acquisition of private lands within the park.

Post-1914 appropriative water rights are governed by a licensing system. Before appropriating water, a party must file an application with the California State Water Resources Control Board (SWRCB). If the SWRCB determines there is unappropriated water available, the permit will generally be approved. Terms and conditions may be placed on the permit to provide for instream beneficial uses and protect existing rights, among other things. Following approval of the permit, the applicant may commence water development. Construction must be completed within a reasonable time period and, if the appropriation is perfected in accordance with all requirements, the SWRCB issues a license (California State Water Resources Control Board, 1995, Sec. 1250-1631).

California licensed water rights of the United States to flow from regional springs potentially affected by selection of proposed Timbisha Trust Lands are listed in the table below.

License No.	Priority Date	Source	Point of Diversion	Type of Use
7577	06/10/60	Unnamed Spring (Ranger Spring)	NE¼ SW¼, Sec. 24, T.11S., R.42E.	Recreational, wildlife domestic
10780	02/16/64	Unnamed Spring (formerly Surprise Spring)	NE¼ SE¼, Sec. 13, T.11S., R.42.E	Domestic
7578	07/13/60	Mesquite Spring	SE¼ SE¼ Sec 26, T.11S., R.42E.	Irrigation, wildlife, domestic
4621	02/17/39	Cow Creek & Nevares Spring	NE¼ NE¼ Sec. 36, T.28N., R.01E.	Recreational, domestic
7854	02/17/41	Texas Spring Diversion,	NW¼ SW¼, SE¼ SW¼, & SW¼	Fire protection,



		Pacific Coast Borax Tunnel	SE¼ Sec. 14, T.27N., R.01E.	domestic
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Ranger, Surprise, and Mesquite Springs are located at the northeast part of the park and are associated with the Grapevine spring discharge areas. Cow Creek & Nevares and Texas Spring are located in the central part of the park and are associated with the Furnace Creek discharge area. It is important to note that Death Valley National Park occupies the lower portions of the Death Valley ground-water flow system and discharge from these springs is clearly associated with regional flow.

### Riparian

Riparian rights of the United States, NPS, at DEVA, were not inventoried for the purposes of this report. Riparian rights may have been acquired by the United States with purchase of private lands and are also associated with lands within the park that were formerly public domain.

Riparian water rights apply only to lands adjacent to and within the same watershed as a water body, and the water must be used upon riparian land. The United States has the same rights as any other riparian landowner (California State Water Resources Control Board, 1990; *in re: Water of Hallett Creek Stream System*, 1988, 243 Cal.Rptr. 887). Unlike appropriative water rights, riparian rights are not lost by non-use. However, they can be lost if the riparian right is severed from the land by, for example, a reservation of the water rights to the grantor in a deed conveying the land parcel.

Under claim of riparian right, water cannot generally be stored and withheld for a deferred use; nor can the right be transferred for use upon another parcel of land (California State Water Resources Control Board, 1990). Riparians share the water supply co-equally with other riparian owners. If a water shortage exists, it is felt by all riparian users.

### Ground Water



Under California law, ground water is presumed to be percolating, unless proven otherwise.<sup>6</sup> The SWRCB has no jurisdiction over percolating ground water except in four southern counties (including San Bernardino County ) where the filing of notices is required. However, the proposed Timbisha reservation sites are not located in these counties. The use of ground water is shared between users in a given ground water basin and, in times of shortage, is equitably apportioned (California State Water Resources Control Board, 1990, pp. 9-10). Percolating ground water may also be appropriated. "Subject to future requirements on overlying lands, surplus water which may be withdrawn without creating an overdraft on the ground water supply may be appropriated for use on nonoverlying lands. Such an appropriation is accomplished simply by use--no permit is required." (California State Water Resources Control Board, 1990, p. 10).

In a water rights dispute, the legal classification of the ground water as percolating or as underflow may be largely irrelevant, if the extraction of ground water substantially affects surface flow. Hutchins (1974, p.691) states:

"So long as the facts of the case show that the extraction of ground water substantially diminishes the flow of the stream to the injury of those who hold rights therein, the question as to whether the ground water at the place of extraction is strictly a part of the stream, or is tributary percolating water on its way to the stream, is immaterial."

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<sup>6</sup> If not percolating, the ground water may be flowing in a known and definite subterranean channel, or may be the underflow of a stream. In these instances, the SWRCB requires a Statement of Water Diversion and Use for a riparian use (a use on overlying land) or a permit for an appropriative right (a use which is not on overlying land). Underflow of a stream channel, in a water rights context, has the following characteristics (Angeles v. Pomeroy, 124 Calif., 57 Pac. 585, 1899): "Underflow must move in a definite direction corresponding to the surface flow of a water course, must be in contact with surface flow, and must be confined to a reasonably well defined space and moving in a course."



Wells of the United States, NPS, at DEVA, were not inventoried for the purposes of this report. There are no known withdrawals from wells within DEVA, that would be affected by water development and use associated with the four proposed Timbisha Trust parcels.<sup>7</sup> The source of potable water supplies in DEVA are springs.

## STATE WATER RIGHTS IN NEVADA

Nevada follows the Doctrine of Prior Appropriation in allocating both surface and ground water. Allocation is generally through an administrative process under the authority of the State Engineer. Obtaining approval of a permit requires filing an application with the State Engineer and advertisement in a paper of general circulation, giving all parties notice and the opportunity to protest. The State Engineer may hold a hearing on the application. The State Engineer will reject the application if (1) there is no unappropriated water available, (2) the appropriation would conflict with existing rights, or (3) the appropriation threatens to prove detrimental to the public interest. Terms and conditions may be included in the permit to protect existing rights and for other purposes. With permit approval, the applicant may commence water development. The priority date is the date the application was filed with the State Engineer. The right to use water may be lost if the water is not put to beneficial use within a specified time period. (See Nevada Division of Water Resources, 1987) The United States, DEVA, does not hold Nevada appropriative water rights.

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<sup>7</sup> Even though potable water supplies from wells may be deemed "ground water" by the California Division of Water Rights, the California State Department of Health Service may classify a potable water supply from a well as "surface water," if the ground-water source is under the direct influence of surface water. (In this case, water treatment is required.) Thus, a water supply from wells might be considered "surface water" in the water-rights area and "ground water" in the public health area.



## POTENTIAL WATER RIGHT CONFLICTS

### General Nature of Conflicts

The water rights of DEVA described above (including the detached Devils Hole unit) are located downgradient from areas where ground water is being withdrawn, or proposed for withdrawal, by private parties, municipalities, and other Federal agencies in the Death Valley ground-water flow system. Water rights of the United States, DEVA, are located largely in California.<sup>8</sup> Water rights and water-related resources of DEVA could be impacted by upgradient withdrawals in Nevada and in California. A single appropriation for a small quantity of water may have a negligible effect. However, when the effect of that single new appropriation is added to those of existing appropriations, both the likelihood and possible degree of impact increase.

Irrespective of the water rights doctrine relied upon, the Timbisha Tribe may find itself drawn into a regional water supply conflict among private, county, state, and Federal interests. The conflict arises from population growth and water demands in Amargosa Valley, Beatty, Pahrump, and Las Vegas areas of Nevada; large areas of Federal lands and associated water demands (for example, the Nevada Test Site and Nellis Air Force Range; Ash Meadows National Wildlife Refuge and DEVA); and a finite supply, as water use continues to increase in this desert area.

### NPS Actions in Nevada

The NPS examines Nevada applications for water appropriation within the Death Valley ground-water flow system. If the NPS determines that a proposed water appropriation would likely impact DEVA or the detached Devils Hole unit, alone or in combination with existing appropriations, the application is usually protested (see "Guidelines for Protesting Water Right Applications in Nevada, in the Same General Area as Proposed Appropriations by the Las Vegas Valley Water District, and Recommended Modifications in the Guidelines", attached).

It is the policy of the NPS to follow state administrative procedures and to pursue negotiated settlements to protect its

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<sup>8</sup> The most notable exception is Devils Hole, a detached unit of the park located in Nevada. In addition, DEVA (northeast part of the park) encompasses a triangle of land in Nevada (approximately 160 square miles).



water rights. Following State procedures, the NPS has protested numerous water appropriation applications. In many instances, the NPS reached settlement agreements with the applicants (for example an agreement between NPS and the Department of Energy [DOE], concerning water right applications of DOE), which addressed the interests of both the NPS and the applicants. On a few occasions, the NPS did not reach agreement, a state hearing was held, and the NPS's protests were overruled by the Nevada State Engineer. Even in these instances, the State Engineer generally included terms and conditions on the applicants' permits that adequately or at least partially addressed NPS concerns.

If the Timbisha Tribe were to apply to the Nevada State Engineer for new water appropriations in the Death Valley flow system upgradient from DEVA, the NPS, following its guidelines, would examine the applications and determine if impact to DEVA water rights and water related resources is likely. If NPS determines that impact is likely and the NPS would risk eventual resource damage, a protest would be filed. If the applications were not protested in the same manner that NPS has protested other applications, the NPS would appear arbitrary or capricious. If the Timbisha Tribe were (1) to rely upon Federal reserved water rights to support its ground-water withdrawals or (2) to purchase and transfer existing water rights, conflict may be forestalled.



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---

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**APPENDIX F**

**LETTER TO NYE COUNTY  
GRANTING COOPERATIVE STATUS**









**NYE COUNTY**  
**DEPARTMENT OF NATURAL RESOURCES & FEDERAL FACILITIES**

1210 E. Basin Rd. Ste. #6 • Pahrump, Nevada 89048

(702) 727-7727 • Fax (702) 727-7919

99-774-LB (L)

December 1, 1999

Mr. Donald Barry, Assistant Secretary  
Fish, Wildlife, and Parks  
U.S. Department of the Interior  
Office of the Secretary  
Washington, DC 20204

**Acceptance of Cooperating Agency Status in the Preparation of the Legislative  
Environmental Impact Statement (LEIS) for the Timbisha Shoshone Tribal Homeland  
Report to Congress**

Dear Mr. Barry:

In response to your letter of October 28, 1999, Nye County is pleased to accept cooperating agency status in the National Environmental Policy Act (NEPA) process for the preparation of the subject LEIS. I understand that applicable procedures are described in the Council on Environmental Quality regulations at 40 CFR Part 1501.6. Nye County has special expertise that we are confident can assist the Department in evaluating the impacts that the proposal may have on Nye County.

We look forward to participating in this process as described in your letter. If you have questions, please contact me directly at (775) 727-7727.

Very Truly Yours,  
NYE COUNTY, NEVADA

Les W. Bradshaw  
Department Manager

LB/cal

cc: listed on page 2



99-774-LB (L)

Mr. Donald Barry

Page 2 of 2

December 1, 1999

cc: Nye County Board of Commissioners  
J. McKnight  
Amargosa Valley Town Board  
Beatty Town Board  
Pahrump Town Board  
D. Alther  
K. Atkinson  
B. Durham  
H. Ealey  
P. Esteves  
S. Haberfelo  
L. Hikida  
E. Horner  
D. Martin  
G. O'Conner  
A. Remus  
J. Simpson  
M. Turnipseed  
B. Vilogen  
D. Wilson





# United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, D.C. 20240

OCT 28 1999



RECEIVED

NOV 04 1999

Mr. Les Bradshaw  
Nye County  
Department of Natural Resources and Federal Facilities  
1210 E. Basin Road., Suite #6  
Pahrump, Nevada 89048

REPOSITORY OFFICE

Dear Mr. Bradshaw:

The Department of the Interior has made a decision to prepare a Legislative Environmental Impact Statement (LEIS) for the Timbisha Shoshone Tribal Homeland Report to Congress. The LEIS will analyze the environmental impacts associated with the proposal to transfer 7,500 acres of land to the Timbisha Shoshone Tribe and related cooperative activities between the Timbisha Shoshone and the Department. Since a great deal of information was collected and evaluated during the two-year Timbisha Shoshone study process, we have an ambitious target schedule of early spring 2000 for completion of the LEIS.

Pursuant to your request, the Department is inviting Nye County to participate in the LEIS process with a cooperating agency status in accordance to the procedures contained in the Council on Environmental Quality (CEQ) regulations found at 40 CFR Part 1501.6. The Department recognizes that Nye County has special expertise to assist us in evaluating potential environmental impacts the proposal may have upon Nye County lands. In your scoping comments to us and in subsequent meetings with departmental representatives, you identified two major areas of concern. The first is the potential social and economic impacts related to the proposed transfer of the BLM Scotty's Junction parcel identified in our proposal and second, the possible impacts that the proposed Scotty's Junction and Death Valley Junction transfer may have on water resources in the surrounding area.

Accordingly, the Bureau of Land Management and the National Park Service, the lead agencies preparing the LEIS, will:

- 1) Request the participation of Nye County in the NEPA process at the earliest possible time.
- 2) Use the input provided by Nye County to the maximum extent possible consistent with their responsibility as lead agencies.
- 3) Meet with Nye County at their request.

Inter Dept.

Copied To:

Les ☒

Karrle ☐

1. USDOI

2. Corr.

3. BLM, Donald

Nick ☐

Jim Marble ☐

Other ☐

File 11-4-99

1. Les

2. Sig

1. Timbisha Sh. Tribe

2. LEIS



Mr. Les Bradshaw

2

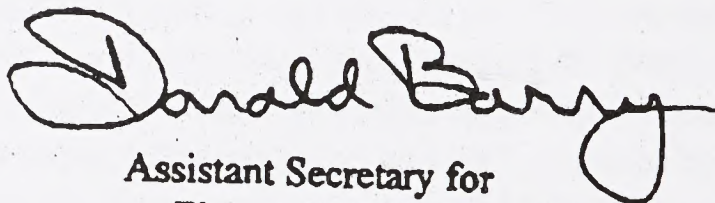
It is expected that Nye County will:

- 1) Participate in the NEPA process at the earliest possible time.
- 2) At the request of the lead agencies, Nye County should provide information and provide input to the environmental analysis, in the areas which Nye County has special expertise. This includes, but may not be limited to, social and economic analysis and hydrological data.
- 3) Nye County should make staff available to support the lead agencies' interdisciplinary team capabilities during the preparation of the document.
- 4) Nye County should provide its own funds and fund any activities or analyses it requests from the lead agencies.

It is the lead agencies' intention to include Nye County in EIS team meetings relevant to the portions of the LEIS for which Nye County has special expertise and report to them during completion of major tasks relating to the NEPA process.

We look forward to your participation. If you have any questions, please contact Craig MacKinnon, Tonopah Field Manager at (775) 482-7801.

Sincerely,



Assistant Secretary for  
Fish and Wildlife and Parks





# United States Department of the Interior

OFFICE OF THE SECRETARY  
Washington, D.C. 20240



## TRANSMISSION NOTICE

This message is electronically transmitted on a Xerox, 7033  
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Transmission Number: 202/208-4684

Verification Number: 202/208-4416

To the following individuals: Craig Mackinnon (775) 482-7810  
John DeSylva (760) 255-8828

From: A/S Staff Member: Karen A.

Department of the Interior  
Assistant Secretary for Fish  
and Wildlife and Parks  
1849 "C" Street N. W.  
MS-MIB-3156  
Washington, D.C. 20240

Number of Pages to follow: 4

Date: 12/21

Time: \_\_\_\_\_







**APPENDIX G**

**106TH CONGRESS 2D SESSION S.2102  
TIMBISHA SHOSHONE HOMELAND ACT**







## TIMBISHA SHOSHONE HOMELAND ACT

Mr. BURNS. Mr. President, I ask unanimous consent that the Senate now proceed to the consideration of Calendar No. 661, S. 2102.

The PRESIDING OFFICER. The clerk will report the bill by title.  
The legislative clerk read as follows:

A bill (S. 2102) to provide to the Timbisha Shoshone Tribe a permanent land base within its aboriginal homeland, and for other purposes, which had been reported from the Committee on Indian Affairs, with an amendment to strike out all after the enacting clause and insert the part printed in italic:

### SECTION 1. SHORT TITLE.

This Act may be cited as the ``Timbisha Shoshone Homeland Act".

### SEC. 2. FINDINGS.

Congress finds the following:

(1) Since time immemorial, the Timbisha Shoshone Tribe has lived in portions of California and Nevada. The Tribe's ancestral homeland includes the area that now comprises Death Valley National Park and other areas of California and Nevada now administered by the Bureau of Land Management.

(2) Since 1936, the Tribe has lived and governed the affairs of the Tribe on approximately 40 acres of land near Furnace Creek in the Park.

(3) The Tribe achieved Federal recognition in 1983 but does not have a land base within the Tribe's ancestral homeland.

(4) Since the Tribe commenced use and occupancy of the Furnace Creek area, the Tribe's membership has grown. Tribal members have a desire and need for housing, government and administrative facilities, cultural facilities, and sustainable economic development to provide decent, safe, and healthy conditions for themselves and their families.

(5) The interests of both the Tribe and the National Park Service would be enhanced by recognizing their coexistence on the same land and by establishing partnerships for compatible land uses and for the interpretation of the Tribe's history and culture for visitors to the Park.

(6) The interests of both the Tribe and the United States would be enhanced by the establishment of a land base for the Tribe and by further delineation of the rights and



obligations of each with respect to the Furnace Creek area and to the Park as a whole.

### SEC. 3. PURPOSES.

Consistent with the recommendations of the report required by section 705(b) of the California Desert Protection Act of 1994 (Public Law 103-433; 108 Stat. 4498), the purposes of this Act are--

(1) to provide in trust to the Tribe land on which the Tribe can live permanently and govern the Tribe's affairs in a modern community within the ancestral homeland of the Tribe outside and within the Park;

(2) to formally recognize the contributions by the Tribe to the history, culture, and ecology of the Park and surrounding area;

(3) to ensure that the resources within the Park are protected and enhanced by--

(A) cooperative activities within the Tribe's ancestral homeland; and

(B) partnerships between the Tribe and the National Park Service and partnerships involving the Bureau of Land Management;

(4) to ensure that such activities are not in derogation of the purposes and values for which the Park was established;

(5) to provide opportunities for a richer visitor experience at the Park through direct interactions between visitors and the Tribe including guided tours, interpretation, and the establishment of a tribal museum and cultural center;

(6) to provide appropriate opportunities for economically viable and ecologically sustainable visitor-related development, by the Tribe within the Park, that is not in derogation of the purposes and values for which the Park was established; and

(7) to provide trust lands for the Tribe in 4 separate parcels of land that is now managed by the Bureau of Land Management and authorize the purchase of 2 parcels now held in private ownership to be taken into trust for the Tribe.

### SEC. 4. DEFINITIONS.

In this Act:

(1) Park.--The term "Park" means Death Valley National Park, including any additions to that Park.

(2) Secretary.--The term "Secretary" means the Secretary of the Interior or the designee of the Secretary.

(3) Tribal.--The term "tribal" means of or pertaining to the Tribe.

(4) Tribe.--The term "Tribe" means the Timbisha Shoshone Tribe, a tribe of American Indians recognized by the United



States pursuant to part 83 of title 25, Code of Federal Regulations (or any corresponding similar regulation or ruling).

(5) Trust lands.--The term ``trust lands" means those lands taken into trust pursuant to this Act.

## SEC. 5. TRIBAL RIGHTS AND AUTHORITY ON THE TIMBISHA SHOSHONE HOMELAND.

(a) In General.--Subject to valid existing rights (existing on the date of enactment of this Act), all right, title, and interest of the United States in and to the lands, including improvements and appurtenances, described in subsection (b) are declared to be held in trust by the United States for the benefit of the Tribe. All maps referred to in subsection (b) shall be on file and available for public inspection in the appropriate offices of the National Park Service and the Bureau of Land Management.

(b) Park Lands and Bureau of Land Management Lands Described.--

(1) In general.--The following lands and water shall be held in trust for the Tribe pursuant to subsection (a):

(A) Furnace Creek, Death Valley National Park, California, an area of 313.99 acres for community development, residential development, historic restoration, and visitor-related economic development, depicted as Tract 37 on the map of Township 27 North, Range 1 East, of the San Bernardino Meridian, California, numbered Map #1 and dated December 2, 1999, together with 92 acre feet per annum of surface and ground water for the purposes associated with the transfer of such lands. This area shall include a 25-acre, nondevelopment zone at the north end of the area and an Adobe Restoration zone containing several historic adobe homes, which shall be managed by the Tribe as a tribal historic district.

(B) Death Valley Junction, California, an area of approximately 1,000 acres, as generally depicted on the map entitled ``Death Valley Junction, California", numbered Map #2 and dated April 12, 2000, together with 15.1 acre feet per annum of ground water for the purposes associated with the transfer of such lands.

(C) Centennial, California, an area of approximately 640 acres, as generally depicted on the map entitled ``Centennial, California", numbered Map #3 and dated April 12, 2000, together with an amount of ground water not to exceed 10 acre feet per annum for the purposes associated with the transfer of such lands.

(D) Scotty's Junction, Nevada, an area of approximately 2,800 acres, as generally depicted on the map entitled ``Scotty's Junction, Nevada", numbered Map #4 and dated April 12, 2000, together with 375.5 acre feet per annum of ground water for the purposes associated with the transfer of



such lands.

(E) Lida, Nevada, Community Parcel, an area of approximately 3,000 acres, as generally depicted on the map entitled "Lida, Nevada, Community Parcel", numbered Map #5 and dated April 12, 2000, together with 14.7 acre feet per annum of ground water for the purposes associated with the transfer of such lands.

(2) Water rights.--The priority date of the Federal water rights described in subparagraphs (A) through (E) of paragraph (1) shall be the date of enactment of this Act, and such Federal water rights shall be junior to Federal and State water rights existing on such date of enactment. Such Federal water rights shall not be subject to relinquishment, forfeiture or abandonment.

(3) Limitations on furnace creek area development.--

(A) Development.--Recognizing the mutual interests and responsibilities of the Tribe and the National Park Service in and for the conservation and protection of the resources in the area described in paragraph (1), development in the area shall be limited to--

(i) for purposes of community and residential development--

(I) a maximum of 50 single-family residences; and

(II) a tribal community center with space for tribal offices, recreation facilities, a multipurpose room and kitchen, and senior and youth facilities;

(ii) for purposes of economic development--

(I) a small-to-moderate desert inn; and

(II) a tribal museum and cultural center with a gift shop;  
and

(iii) the infrastructure necessary to support the level of development described in clauses (i) and (ii).

(B) Exception.--Notwithstanding the provisions of subparagraph (A)(ii), the National Park

[[Page S7294]]

Service and the Tribe are authorized to negotiate mutually agreed upon, visitor-related economic development in lieu of the development set forth in that subparagraph if such alternative development will have no greater environmental impact than the development set forth in that subparagraph.

(C) Right-of-way.--The Tribe shall have a right-of-way for ingress and egress on Highway 190 in California.

(4) Limitations on impact on mining claims.--Nothing in this Act shall be construed as terminating any valid mining claim existing on the date of enactment of this Act on the land described in paragraph (1)(E). Any person with such an



existing mining claim shall have all the rights incident to mining claims, including the rights of ingress and egress on the land described in paragraph (1)(E). Any person with such an existing mining claim shall have the right to occupy and use so much of the surface of the land as is required for all purposes reasonably necessary to mine and remove the minerals from the land, including the removal of timber for mining purposes. Such a mining claim shall terminate when the claim is determined to be invalid or is abandoned.

(c) Legal Descriptions.--Not later than 1 year after the date of enactment of this Act, the Secretary shall file a legal description of the areas described in subsection (b) with the Committee on Resources of the House of Representatives and with the Committee on Indian Affairs and the Committee on Energy and Natural Resources of the Senate. Such legal description shall have the same force and effect as if the information contained in the description were included in that subsection except that the Secretary may correct clerical and typographical errors in such legal description and in the maps referred to in the legal description. The legal description shall be on file and available for public inspection in the offices of the National Park Service and the Bureau of Land Management.

(d) Additional Trust Resources.--The Secretary may purchase from willing sellers the following parcels and appurtenant water rights, or the water rights separately, to be taken into trust for the Tribe:

(1) Indian Rancheria Site, California, an area of approximately 120 acres, as generally depicted on the map entitled ``Indian Rancheria Site, California" numbered Map #6 and dated December 3, 1999.

(2) Lida Ranch, Nevada, an area of approximately 2,340 acres, as generally depicted on the map entitled ``Lida Ranch" numbered Map #7 and dated April 6, 2000, or another parcel mutually agreed upon by the Secretary and the Tribe.

(e) Special Use Areas.--

(1) In general.--The areas described in this subsection shall be nonexclusive special use areas for the Tribe, subject to other Federal law. Members of the Tribe are authorized to use these areas for low impact, ecologically sustainable, traditional practices pursuant to a jointly established management plan mutually agreed upon by the Tribe, and by the National Park Service or the Bureau of Land Management, as appropriate. All maps referred to in paragraph (4) shall be on file and available for public inspection in the offices of the National Park Service and Bureau of Land Management.

(2) Recognition of the history and culture of the tribe.--In the special use areas, in recognition of the significant contributions the Tribe has made to the history, ecology, and culture of the Park and to ensure that the visitor experience



in the Park will be enhanced by the increased and continued presence of the Tribe, the Secretary shall permit the Tribe's continued use of Park resources for traditional tribal purposes, practices, and activities.

(3) Resource use by the tribe.--In the special use areas, any use of Park resources by the Tribe for traditional purposes, practices, and activities shall not include the taking of wildlife and shall not be in derogation of purposes and values for which the Park was established.

(4) Specific areas.--The following areas are designated special use areas pursuant to paragraph (1):

(A) Mesquite use area.--The area generally depicted on the map entitled "Mesquite Use Area" numbered Map #8 and dated April 12, 2000. The Tribe may use this area for processing mesquite using traditional plant management techniques such as thinning, pruning, harvesting, removing excess sand, and removing exotic species. The National Park Service may limit and condition, but not prohibit entirely, public use of this area or parts of this area, in consultation with the Tribe. This area shall be managed in accordance with the jointly established management plan referred to in paragraph (1).

(B) Buffer area.--An area of approximately 1,500 acres, as generally depicted on the map entitled "Buffer Area" numbered Map #8 and dated April 12, 2000. The National Park Service shall restrict visitor use of this area to protect the privacy of the Tribe and to provide an opportunity for the Tribe to conduct community affairs without undue disruption from the public.

(C) Timbisha shoshone natural and cultural preservation area.--An area that primarily consists of Park lands and also a small portion of Bureau of Land Management land in California, as generally depicted on the map entitled "Timbisha Shoshone Natural and Cultural Preservation Area" numbered Map #9 and dated April 12, 2000.

(5) Additional provisions.--With respect to the Timbisha Shoshone Natural and Cultural Preservation Area designated in paragraph (4)(C)--

(A) the Tribe may establish and maintain a tribal resource management field office, garage, and storage area, all within the area of the existing ranger station at Wildrose (existing as of the date of enactment of this Act);

(B) the Tribe also may use traditional camps for tribal members at Wildrose and Hunter Mountain in accordance with the jointly established management plan referred to in paragraph (1);

(C) the area shall be depicted on maps of the Park and Bureau of Land Management that are provided for general visitor use;

(D) the National Park Service and the Bureau of Land Management shall accommodate access by the Tribe to and use by the Tribe of--



(i) the area (including portions described in subparagraph (E)) for traditional cultural and religious activities, in a manner consistent with the purpose and intent of Public Law 95-341 (commonly known as the "American Indian Religious Freedom Act") (42 U.S.C. 1996 et seq.); and

(ii) areas designated as wilderness (including portions described in subparagraph (E)), in a manner consistent with the purpose and intent of the Wilderness Act (16 U.S.C. 1131 et seq.); and

(E)(i) on the request of the Tribe, the National Park Service and the Bureau of Land Management shall temporarily close to the general public, 1 or more specific portions of the area in order to protect the privacy of tribal members engaging in traditional cultural and religious activities in those portions; and

(ii) any such closure shall be made in a manner that affects the smallest practicable area for the minimum period necessary for the purposes described in clause (i).

(f) Access and Use.--Members of the Tribe shall have the right to enter and use the Park without payment of any fee for admission into the Park.

(g) Administration.--The trust lands shall constitute the Timbisha Shoshone Reservation and shall be administered pursuant to the laws and regulations applicable to other Indian trust lands, except as otherwise provided in this Act.

## SEC. 6. IMPLEMENTATION PROCESS.

(a) Government-to-Government Agreements.--In order to fulfill the purposes of this Act and to establish cooperative partnerships for purposes of this Act, the National Park Service, the Bureau of Land Management, and the Tribe shall enter into government-to-government consultations and shall develop protocols to review planned development in the Park. The National Park Service and the Bureau of Land Management are authorized to enter into cooperative agreements with the Tribe for the purpose of providing training on the interpretation, management, protection, and preservation of the natural and cultural resources of the areas designated for special uses by the Tribe in section 5(e)(4).

(b) Standards.--The National Park Service and the Tribe shall develop mutually agreed upon standards for size, impact, and design for use in planning, resource protection, and development of the Furnace Creek area and for the facilities at Wildrose. The standards shall be based on standards for recognized best practices for environmental sustainability and shall not be less restrictive than the environmental standards applied within the National Park System at any given time. Development in the area shall be conducted in a manner consistent with the standards, which shall be reviewed periodically and revised as necessary.



## SEC. 7. MISCELLANEOUS PROVISIONS.

(a) Tribal Employment.--In employing individuals to perform any construction, maintenance, interpretation, or other service in the Park, the Secretary shall, insofar as practicable, give first preference to qualified members of the Tribe.

(b) Gaming.--Gaming as defined and regulated by the Indian Gaming Regulatory Act (25 U.S.C. 2701 et seq.) shall be prohibited on trust lands within the Park.

(c) Initial Reservation.--Lands taken into trust for the Tribe pursuant to section 5, except for the Park land described in subsections (b)(1)(A) and (d)(1) of such section, shall be considered to be the Tribe's initial reservation for purposes of section 20(b)(1)(B)(ii) of the Indian Gaming Regulatory Act (25 U.S.C. 2719(b)(1)(B)(ii)).

(d) Tribal Jurisdiction Over Trust Lands.--All trust lands that are transferred under this Act and located within California shall be exempt from section 1162 of title 18, United States Code, and section 1360 of title 28, United States Code, upon the certification by the Secretary, after consultation with the Attorney General, that the law enforcement system in place for such lands will be adequate to provide for the public safety and the public interest, except that no such certification may take effect until the expiration of the 3-year period beginning on the date of enactment of this Act.

## SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out this Act such sums as may be necessary.

### Amendment No. 3945

Mr. BURNS. Mr. President, I send an amendment to the desk and ask for its immediate consideration.

The PRESIDING OFFICER. The clerk will report.

The legislative clerk read as follows:

The Senator from Montana [Mr. Burns], for Mr. Inouye, proposes an amendment numbered 3945.

Mr. BURNS. Mr. President, I ask unanimous consent that reading of the amendment be dispensed with.

The PRESIDING OFFICER. Without objection, it is so ordered.

The amendment is as follows:

On page 22, line 20, strike ``(C)'' and insert ``(C)(i)''.



On page 23, between lines 2 and 3, insert the following:

(ii) If the Secretary determines that there is insufficient ground water available on the lands described in clause (i) to satisfy the Tribe's right to ground water to fulfill the purposes associated with the transfer of such lands, then the Tribe and the Secretary shall, within 2 years of such determination, identify approximately 640 acres of land that are administered by the Bureau of Land Management in that portion of Inyo County, California, to the north and east of the China Lake Naval Weapons Center, to be a mutually agreed upon substitute for the lands described in clause (i). If the Secretary determines that sufficient water is available to fulfill the purposes associated with the transfer of the lands described in the preceding sentence, then the Tribe shall request that the Secretary accept such lands into trust for the benefit of the Timbisha Shoshone Tribe, and the Secretary shall accept such lands, together with an amount of water not to exceed 10 acre feet per annum, into trust for the Tribe as a substitute for the lands described in clause (i).

On page 32, between lines 20 and 21, insert the following:

(c) Water Monitoring.--The Secretary and the Tribe shall develop mutually agreed upon standards for a water monitoring system to assess the effects of water use at Scotty's Junction and at Death Valley Junction on the tribal trust lands described in subparagraphs (A), (B), and (D) of section 5(b)(1), and on the Park. Water monitoring shall be conducted in a manner that is consistent with such standards, which shall be reviewed periodically and revised as necessary.

Mr. BURNS. Mr. President, I ask unanimous consent that the amendment be agreed to, the committee amendment be agreed to, the bill be read the third time and passed, the motion to reconsider be laid upon the table, and that any statements relating to the bill be printed in the Record.

The PRESIDING OFFICER. Without objection, it is so ordered.

The amendment (No. 3945) was agreed to.

The committee amendment, as amended, was agreed to.

The bill (S. 2102), as amended, was read the third time and passed.

S. 2102

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled,

#### SECTION 1. SHORT TITLE.

This Act may be cited as the ``Timbisha Shoshone Homeland



Act".

## SEC. 2. FINDINGS.

Congress finds the following:

(1) Since time immemorial, the Timbisha Shoshone Tribe has lived in portions of California and Nevada. The Tribe's ancestral homeland includes the area that now comprises Death Valley National Park and other areas of California and Nevada now administered by the Bureau of Land Management.

(2) Since 1936, the Tribe has lived and governed the affairs of the Tribe on approximately 40 acres of land near Furnace Creek in the Park.

(3) The Tribe achieved Federal recognition in 1983 but does not have a land base within the Tribe's ancestral homeland.

(4) Since the Tribe commenced use and occupancy of the Furnace Creek area, the Tribe's membership has grown. Tribal members have a desire and need for housing, government and administrative facilities, cultural facilities, and sustainable economic development to provide decent, safe, and healthy conditions for themselves and their families.

(5) The interests of both the Tribe and the National Park Service would be enhanced by recognizing their coexistence on the same land and by establishing partnerships for compatible land uses and for the interpretation of the Tribe's history and culture for visitors to the Park.

(6) The interests of both the Tribe and the United States would be enhanced by the establishment of a land base for the Tribe and by further delineation of the rights and obligations of each with respect to the Furnace Creek area and to the Park as a whole.

## SEC. 3. PURPOSES.

Consistent with the recommendations of the report required by section 705(b) of the California Desert Protection Act of 1994 (Public Law 103-433; 108 Stat. 4498), the purposes of this Act are--

(1) to provide in trust to the Tribe land on which the Tribe can live permanently and govern the Tribe's affairs in a modern community within the ancestral homeland of the Tribe outside and within the Park;

(2) to formally recognize the contributions by the Tribe to the history, culture, and ecology of the Park and surrounding area;

(3) to ensure that the resources within the Park are protected and enhanced by--

(A) cooperative activities within the Tribe's ancestral homeland; and

(B) partnerships between the Tribe and the National Park Service and partnerships involving the Bureau of Land



Management;

(4) to ensure that such activities are not in derogation of the purposes and values for which the Park was established;

(5) to provide opportunities for a richer visitor experience at the Park through direct interactions between visitors and the Tribe including guided tours, interpretation, and the establishment of a tribal museum and cultural center;

(6) to provide appropriate opportunities for economically viable and ecologically sustainable visitor-related development, by the Tribe within the Park, that is not in derogation of the purposes and values for which the Park was established; and

(7) to provide trust lands for the Tribe in 4 separate parcels of land that is now managed by the Bureau of Land Management and authorize the purchase of 2 parcels now held in private ownership to be taken into trust for the Tribe.

#### SEC. 4. DEFINITIONS.

In this Act:

(1) Park.--The term "Park" means Death Valley National Park, including any additions to that Park.

(2) Secretary.--The term "Secretary" means the Secretary of the Interior or the designee of the Secretary.

(3) Tribal.--The term "tribal" means of or pertaining to the Tribe.

(4) Tribe.--The term "Tribe" means the Timbisha Shoshone Tribe, a tribe of American Indians recognized by the United States pursuant to part 83 of title 25, Code of Federal Regulations (or any corresponding similar regulation or ruling).

(5) Trust lands.--The term "trust lands" means those lands taken into trust pursuant to this Act.

#### SEC. 5. TRIBAL RIGHTS AND AUTHORITY ON THE TIMBISHA SHOSHONE HOMELAND.

(a) In General.--Subject to valid existing rights (existing on the date of enactment of this Act), all right, title, and interest of the United States in and to the lands, including improvements and appurtenances, described in subsection (b) are declared to be held in trust by the United States for the benefit of the Tribe. All maps referred to in subsection (b) shall be on file and available for public inspection in the appropriate offices of the National Park Service and the Bureau of Land Management.

(b) Park Lands and Bureau of Land Management Lands Described.--

(1) In general.--The following lands and water shall be held in trust for the Tribe pursuant to subsection (a):



(A) Furnace Creek, Death Valley National Park, California, an area of 313.99 acres for community development, residential development, historic restoration, and visitor-related economic development, depicted as Tract 37 on the map of Township 27 North, Range 1 East, of the San Bernardino Meridian, California, numbered Map #1 and dated December 2, 1999, together with 92 acre feet per annum of surface and ground water for the purposes associated with the transfer of such lands. This area shall include a 25-acre, nondevelopment zone at the north end of the area and an Adobe Restoration zone containing several historic adobe homes, which shall be managed by the Tribe as a tribal historic district.

(B) Death Valley Junction, California, an area of approximately 1,000 acres, as generally depicted on the map entitled "Death Valley Junction, California", numbered Map #2 and dated April 12, 2000, together with 15.1 acre feet per annum of ground water for the purposes associated with the transfer of such lands.

(C)(i) Centennial, California, an area of approximately 640 acres, as generally depicted on the map entitled "Centennial, California", numbered Map #3 and dated April 12, 2000, together with an amount of ground water not to exceed 10 acre feet per annum for the purposes associated with the transfer of such lands.

(ii) If the Secretary determines that there is insufficient ground water available on the lands described in clause (i) to satisfy the Tribe's right to ground water to fulfill the purposes associated with the transfer of such lands, then the Tribe and the Secretary shall, within 2 years of such determination, identify approximately 640 acres of land that are administered by the Bureau of Land Management in that portion of Inyo County, California, to the north and east of the China Lake Naval Weapons Center, to be a mutually agreed upon substitute for the lands described in clause (i). If the Secretary determines that sufficient water is available to fulfill the purposes associated with the transfer of the lands described in the preceding sentence, then the Tribe shall request that the Secretary accept such lands into trust for the benefit of the Timbisha Shoshone Tribe, and the Secretary shall accept such lands, together with an amount of water not to exceed 10 acre feet per annum, into trust for the Tribe as a substitute for the lands described in clause (i).

(D) Scotty's Junction, Nevada, an area of approximately 2,800 acres, as generally depicted on the map entitled "Scotty's Junction, Nevada", numbered Map #4 and dated April 12, 2000, together with 375.5 acre feet per annum of ground water for the purposes associated with the transfer of such lands.

(E) Lida, Nevada, Community Parcel, an area of approximately 3,000 acres, as generally depicted on the map



entitled ``Lida, Nevada, Community Parcel'', numbered Map #5 and dated April 12, 2000, together with 14.7 acre feet per annum of ground water for the purposes associated with the transfer of such lands.

(2) Water rights.--The priority date of the Federal water rights described in subparagraphs (A) through (E) of paragraph (1) shall be the date of enactment of this Act, and

[[Page S7296]]

such Federal water rights shall be junior to Federal and State water rights existing on such date of enactment. Such Federal water rights shall not be subject to relinquishment, forfeiture or abandonment.

(3) Limitations on furnace creek area development.--

(A) Development.--Recognizing the mutual interests and responsibilities of the Tribe and the National Park Service in and for the conservation and protection of the resources in the area described in paragraph (1), development in the area shall be limited to--

(i) for purposes of community and residential development--

(I) a maximum of 50 single-family residences; and

(II) a tribal community center with space for tribal offices, recreation facilities, a multipurpose room and kitchen, and senior and youth facilities;

(ii) for purposes of economic development--

(I) a small-to-moderate desert inn; and

(II) a tribal museum and cultural center with a gift shop;  
and

(iii) the infrastructure necessary to support the level of development described in clauses (i) and (ii).

(B) Exception.--Notwithstanding the provisions of subparagraph (A)(ii), the National Park Service and the Tribe are authorized to negotiate mutually agreed upon, visitor-related economic development in lieu of the development set forth in that subparagraph if such alternative development will have no greater environmental impact than the development set forth in that subparagraph.

(C) Right-of-way.--The Tribe shall have a right-of-way for ingress and egress on Highway 190 in California.

(4) Limitations on impact on mining claims.--Nothing in this Act shall be construed as terminating any valid mining claim existing on the date of enactment of this Act on the land described in paragraph (1)(E). Any person with such an existing mining claim shall have all the rights incident to mining claims, including the rights of ingress and egress on the land described in paragraph (1)(E). Any person with such



an existing mining claim shall have the right to occupy and use so much of the surface of the land as is required for all purposes reasonably necessary to mine and remove the minerals from the land, including the removal of timber for mining purposes. Such a mining claim shall terminate when the claim is determined to be invalid or is abandoned.

(c) Legal Descriptions.--Not later than 1 year after the date of enactment of this Act, the Secretary shall file a legal description of the areas described in subsection (b) with the Committee on Resources of the House of Representatives and with the Committee on Indian Affairs and the Committee on Energy and Natural Resources of the Senate. Such legal description shall have the same force and effect as if the information contained in the description were included in that subsection except that the Secretary may correct clerical and typographical errors in such legal description and in the maps referred to in the legal description. The legal description shall be on file and available for public inspection in the offices of the National Park Service and the Bureau of Land Management.

(d) Additional Trust Resources.--The Secretary may purchase from willing sellers the following parcels and appurtenant water rights, or the water rights separately, to be taken into trust for the Tribe:

(1) Indian Rancheria Site, California, an area of approximately 120 acres, as generally depicted on the map entitled "Indian Rancheria Site, California" numbered Map #6 and dated December 3, 1999.

(2) Lida Ranch, Nevada, an area of approximately 2,340 acres, as generally depicted on the map entitled "Lida Ranch" numbered Map #7 and dated April 6, 2000, or another parcel mutually agreed upon by the Secretary and the Tribe.

(e) Special Use Areas.--

(1) In general.--The areas described in this subsection shall be nonexclusive special use areas for the Tribe, subject to other Federal law. Members of the Tribe are authorized to use these areas for low impact, ecologically sustainable, traditional practices pursuant to a jointly established management plan mutually agreed upon by the Tribe, and by the National Park Service or the Bureau of Land Management, as appropriate. All maps referred to in paragraph (4) shall be on file and available for public inspection in the offices of the National Park Service and Bureau of Land Management.

(2) Recognition of the history and culture of the tribe.--In the special use areas, in recognition of the significant contributions the Tribe has made to the history, ecology, and culture of the Park and to ensure that the visitor experience in the Park will be enhanced by the increased and continued presence of the Tribe, the Secretary shall permit the Tribe's continued use of Park resources for traditional tribal



purposes, practices, and activities.

(3) Resource use by the tribe.--In the special use areas, any use of Park resources by the Tribe for traditional purposes, practices, and activities shall not include the taking of wildlife and shall not be in derogation of purposes and values for which the Park was established.

(4) Specific areas.--The following areas are designated special use areas pursuant to paragraph (1):

(A) Mesquite use area.--The area generally depicted on the map entitled ``Mesquite Use Area" numbered Map #8 and dated April 12, 2000. The Tribe may use this area for processing mesquite using traditional plant management techniques such as thinning, pruning, harvesting, removing excess sand, and removing exotic species. The National Park Service may limit and condition, but not prohibit entirely, public use of this area or parts of this area, in consultation with the Tribe. This area shall be managed in accordance with the jointly established management plan referred to in paragraph (1).

(B) Buffer area.--An area of approximately 1,500 acres, as generally depicted on the map entitled ``Buffer Area" numbered Map #8 and dated April 12, 2000. The National Park Service shall restrict visitor use of this area to protect the privacy of the Tribe and to provide an opportunity for the Tribe to conduct community affairs without undue disruption from the public.

(C) Timbisha shoshone natural and cultural preservation area.--An area that primarily consists of Park lands and also a small portion of Bureau of Land Management land in California, as generally depicted on the map entitled ``Timbisha Shoshone Natural and Cultural Preservation Area" numbered Map #9 and dated April 12, 2000.

(5) Additional provisions.--With respect to the Timbisha Shoshone Natural and Cultural Preservation Area designated in paragraph (4)(C)--

(A) the Tribe may establish and maintain a tribal resource management field office, garage, and storage area, all within the area of the existing ranger station at Wildrose (existing as of the date of enactment of this Act);

(B) the Tribe also may use traditional camps for tribal members at Wildrose and Hunter Mountain in accordance with the jointly established management plan referred to in paragraph (1);

(C) the area shall be depicted on maps of the Park and Bureau of Land Management that are provided for general visitor use;

(D) the National Park Service and the Bureau of Land Management shall accommodate access by the Tribe to and use by the Tribe of--

(i) the area (including portions described in subparagraph (E)) for traditional cultural and religious activities, in a manner consistent with the purpose and intent of Public Law



95-341 (commonly known as the ``American Indian Religious Freedom Act'') (42 U.S.C. 1996 et seq.); and

(ii) areas designated as wilderness (including portions described in subparagraph (E)), in a manner consistent with the purpose and intent of the Wilderness Act (16 U.S.C. 1131 et seq.); and

(E)(i) on the request of the Tribe, the National Park Service and the Bureau of Land Management shall temporarily close to the general public, 1 or more specific portions of the area in order to protect the privacy of tribal members engaging in traditional cultural and religious activities in those portions; and

(ii) any such closure shall be made in a manner that affects the smallest practicable area for the minimum period necessary for the purposes described in clause (i).

(f) Access and Use.--Members of the Tribe shall have the right to enter and use the Park without payment of any fee for admission into the Park.

(g) Administration.--The trust lands shall constitute the Timbisha Shoshone Reservation and shall be administered pursuant to the laws and regulations applicable to other Indian trust lands, except as otherwise provided in this Act.

#### SEC. 6. IMPLEMENTATION PROCESS.

(a) Government-to-Government Agreements.--In order to fulfill the purposes of this Act and to establish cooperative partnerships for purposes of this Act, the National Park Service, the Bureau of Land Management, and the Tribe shall enter into government-to-government consultations and shall develop protocols to review planned development in the Park. The National Park Service and the Bureau of Land Management are authorized to enter into cooperative agreements with the Tribe for the purpose of providing training on the interpretation, management, protection, and preservation of the natural and cultural resources of the areas designated for special uses by the Tribe in section 5(e)(4).

(b) Standards.--The National Park Service and the Tribe shall develop mutually agreed upon standards for size, impact, and design for use in planning, resource protection, and development of the Furnace Creek area and for the facilities at Wildrose. The standards shall be based on standards for recognized best practices for environmental sustainability and shall not be less restrictive than the environmental standards applied within the National Park System at any given time. Development in the area shall be conducted in a manner consistent with the standards, which shall be reviewed periodically and revised as necessary.

(c) Water Monitoring.--The Secretary and the Tribe shall develop mutually agreed upon standards for a water monitoring system to assess the effects of water use at Scotty's



Junction and at Death Valley Junction on the tribal trust lands described in subparagraphs (A), (B), and (D) of section 5(b)(1), and on the Park. Water monitoring

[[Page S7297]]

shall be conducted in a manner that is consistent with such standards, which shall be reviewed periodically and revised as necessary.

## SEC. 7. MISCELLANEOUS PROVISIONS.

(a) Tribal Employment.--In employing individuals to perform any construction, maintenance, interpretation, or other service in the Park, the Secretary shall, insofar as practicable, give first preference to qualified members of the Tribe.

(b) Gaming.--Gaming as defined and regulated by the Indian Gaming Regulatory Act (25 U.S.C. 2701 et seq.) shall be prohibited on trust lands within the Park.

(c) Initial Reservation.--Lands taken into trust for the Tribe pursuant to section 5, except for the Park land described in subsections (b)(1)(A) and (d)(1) of such section, shall be considered to be the Tribe's initial reservation for purposes of section 20(b)(1)(B)(ii) of the Indian Gaming Regulatory Act (25 U.S.C. 2719(b)(1)(B)(ii))

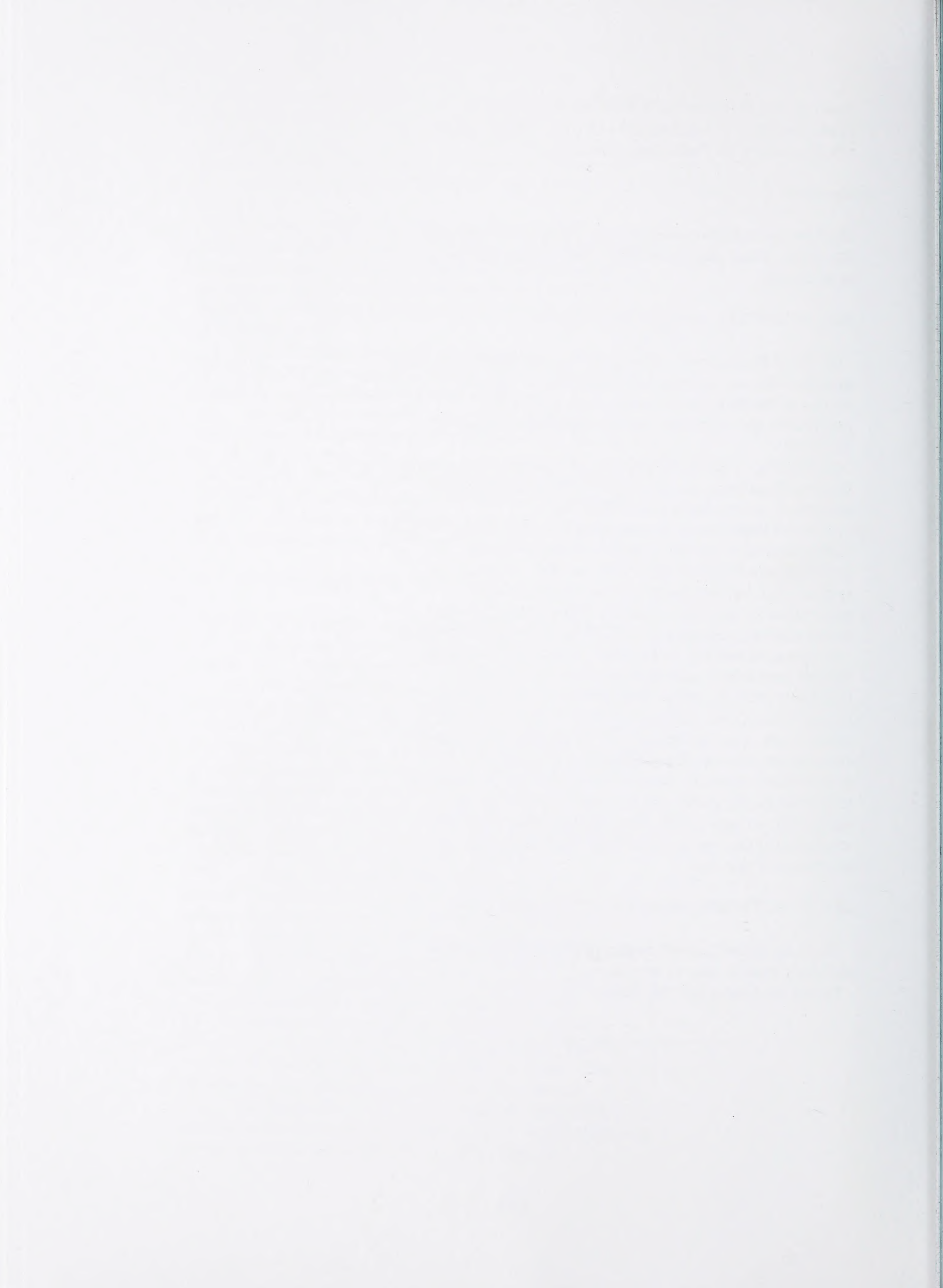
(d) Tribal Jurisdiction Over Trust Lands.--All trust lands that are transferred under this Act and located within California shall be exempt from section 1162 of title 18, United States Code, and section 1360 of title 28, United States Code, upon the certification by the Secretary, after consultation with the Attorney General, that the law enforcement system in place for such lands will be adequate to provide for the public safety and the public interest, except that no such certification may take effect until the expiration of the 3-year period beginning on the date of enactment of this Act.

## SEC. 8. AUTHORIZATION OF APPROPRIATIONS.

There are authorized to be appropriated to carry out this Act such sums as may be necessary.

Passed the Senate July 19, 2000.







## **APPENDIX H**

**LETTER FROM NEVADA NATURAL HERITAGE PROGRAM  
DEPARTMENT OF CONSERVATION AND NATURAL RESOURCES**







# Nevada Natural Heritage Program

Department of Conservation and Natural Resources

1550 East College Parkway, Suite 145 \* Carson City, Nevada 89706-7921

voice: (775) 687-4245 fax: (775) 687-1288 web: [www.state.nv.us/nvnhp/](http://www.state.nv.us/nvnhp/)

2 February 2000

Brett Daniels  
Harding Lawson Associates  
90 Digital Drive  
Novato, CA 94949

RE: Data request received 25 January 2000

Dear Mr. Daniels:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or sensitive plant and animal taxa recorded within or near the Timbisha Shoshone-Tribal Homelands (Scotty's Junction Nevada area). We searched our database and maps for the following:

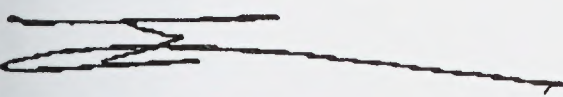
Township 75	Range 44E	Section all
Township 85	Range 44E	Section all

There are no sensitive taxa recorded within the given area. However, habitat may also be available for: the desert tortoise, *Gopherus agassizii*, a Federally Threatened Taxon; the banded Gila monster, *Heloderma suspectum cinctum*, a Nevada Bureau of Land Management (BLM) Special Status Species; the chuckwalla, *Sauromalus ater*, a Nevada BLM Sensitive Species; and the Las Vegas bearpoppy, *Arctomecon californica*, a Nevada BLM Special Status Species also protected under Nevada state law (NRS 527.260-.300) as critically endangered. We do not have complete data on various raptors that may also occur in the area; for more information contact Gary Herron, Nevada Division of Wildlife at (775) 688-1500. Please note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,



Eric S. Miskow  
Biologist III/Data Manager



# Nevada Natural Heritage Program

Department of Conservation and Natural Resources

1550 East College Parkway, Suite 145 \* Carson City, Nevada 89706-7921

voice: (775) 687-4245 fax: (775) 687-1288 web: [www.state.nv.us/nvnhp/](http://www.state.nv.us/nvnhp/)

27 January 2000

Brett Daniels  
Harding Lawson Associates  
90 Digital Drive  
Novato, CA 94949

RE: Data request received 25 January 2000

Dear Mr. Daniels:

We are pleased to provide the information you requested on endangered, threatened, candidate, and/or sensitive plant and animal taxa recorded within or near the Timbisha Shoshone-Tribal Homelands (Lida Summit area). We searched our database and maps for the following:

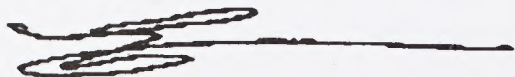
Township 5S	Range 40E	Section all
Township 6S	Range 40E	Section all

There are no sensitive taxa recorded within the given area. However, habitat may also be available for: the desert tortoise, *Gopherus agassizii*, a Federally Threatened Taxon; the banded Gila monster, *Heloderma suspectum cinctum*, a Nevada Bureau of Land Management (BLM) Special Status Species; the chuckwalla, *Sauromalus ater*, a Nevada BLM Sensitive Species; and the Las Vegas bearpoppy, *Arctomecon californica*, a Nevada BLM Special Status Species also protected under Nevada state law (NRS 527.260-300) as critically endangered. We do not have complete data on various raptors that may also occur in the area; for more information contact Gary Herron, Nevada Division of Wildlife at (775) 688-1500. Please note that all cacti, yuccas, and Christmas trees are protected by Nevada state law (NRS 527.060-.120), including taxa not tracked by this office.

Please note that our data are dependent on the research and observations of many individuals and organizations, and in most cases are not the result of comprehensive or site-specific field surveys. Natural Heritage reports should never be regarded as final statements on the taxa or areas being considered, nor should they be substituted for on-site surveys required for environmental assessments.

Thank you for checking with our program. Please contact us for additional information or further assistance.

Sincerely,



Eric S. Miskow  
Biologist III/Data Manager



## **APPENDIX I**

### **MEMORANDUM FROM NATURAL RESOURCES CONSULTING ENGINEERS REGARDING PRELIMINARY NON-AGRICULTURAL WATER NEEDS ASSESSMENT**







# MEMORANDUM

**Date:** February 24, 2000  
**To:** File  
**Cc:**  
**From:** NRCE, Inc.  
**RE:** Preliminary Non-Agricultural Water Needs Assessment

---

## I. INTRODUCTION & BACKGROUND

A cursory water needs assessment was prepared for the Timbisha Shoshone Tribe, based on the recently proposed reserved Tribal lands (Timbisha and Department of Interior, 1999). The focus of the water needs investigation was determination of the water demand for the current and future Timbisha population and their needs.

### 1. Reservation Land Area

The Reservation lands proposed for the Timbisha Tribe include 7,200 acres of land in California and Nevada administered by the BLM and 300 acres within the Death Valley National Park, as presented below:

- 300 acres at Furnace Creek within the Death Valley National Park
- 1,000 acres at Death Valley Junction, CA
- 640 acres at Centennial, CA
- 2,800 acres near Scotty's Junction, NV
- 2,800 acres near Lida, NV

In addition, the following private lands are also recommended for inclusion in the Reservation:

- 120 acres at Indian Rancheria in Saline Valley, CA
- 2,430 acre Lida Ranch, NV

### 2. Potential Land Uses

Potential land uses were preliminarily identified for the parcels to be included in the Reservation (Timbisha and Department of Interior, 1999). The parcel at Furnace Creek is to be developed according to a plan that is mutually acceptable to the Tribe and the National Park Service and includes housing, a Tribal Center, and economic development. Land use at the other sites is less rigorously defined, but generally include residential housing and economic development. The potential commercial and economic activities associated with the proposed Reservation are varied, reflecting the varied locations of the parcels, and may include tourist-based facilities such as resorts, spas, and golf courses; retail outlets; and cultural outlets.

### 3. Water Demands

Potential water demands associated with the Tribal lands may include residential demands, resort operations, park areas, commercial development, and others. NRCE reviewed previous water demands developed for the



reservation, industry data, and information from other similar projects to establish water duty factors for the potential activities.

The outdoor water demands will vary significantly across the seven parcels of land that comprise the proposed reserved lands. The approximate reference evapotranspiration for the sites ranges from approximately 70 inches/yr at the higher elevation sites to 90 inches per year at Furnace Creek (Pruitt, 1987). Agricultural and garden water use will vary depending on the specific crop and timing and outdoor landscaping water use will vary depending the landscaping program employed. The 1998 California water plan (California DWR, 1998) establishes an outdoor water use goal of 80 percent of the reference ET for this region. A 75 percent irrigation efficiency was assumed for landscape irrigation. Gardens will typically use lower amounts of water, as many vegetable crops will not be raised during the peak summer heat. The overall use of double cropping, permanent crops, and other factors will influence garden water use. For all gardens, a water use rate of 40 percent of the annual reference ET was assumed combined with a 60 percent irrigation efficiency. All residences were evaluated based on 0.25 acres of domestic garden area and no additional landscaping.

The estimated water use duties are summarized in Table 1.

Table 1 Water Duty Factors	
Category	Water Duty Factor
Residential	100 gpcd <sup>(1)</sup>
Domestic Garden	
Furnace Creek	5.0 ac-ft/ac
Other Sites	4.2 ac-ft/ac
Landscaping	
Furnace Creek	8.0 ac-ft/ac
Other Sites	6.7 ac-ft/ac
Hotel	60 gpd/room
Resort Center	0.60 gpd/sf
Convenience Store	392 gpd <sup>(1)</sup>
Restaurant (50 person capacity)	1093 gpd <sup>(1)</sup>
Community Center	1793 gpd <sup>(1)</sup>
Health Clinic	507 gpd <sup>(1)</sup>
Tribal Offices	423 gpd <sup>(1)</sup>
Cultural Center	67.8 gpd <sup>(1)</sup>
Undefined Service, Retail, and Institutional	50 gpcd
<sup>(1)</sup> Source: Bellinger, 1998.	

## II. WATER SUPPLY

Water supply investigations of the proposed Timbisha lands have been conducted by several agencies. (Bellinger, 1998; Bellinger, 1999; US DOI, 1999; Werrell, 1998). Due to the time constraints of this evaluation, these previous water supply estimates were used, as the basis for the water needs assessment. The water supply investigations were not independently investigated for completeness or accuracy. Water quality is variable throughout the region. In general, limited water quality data was associated with the water supply investigation, and were reported categorically. The water quantity and quality information is summarized in Table 2.



Table 2 Water Supply and Quality Summary			
Parcel	Water Source	Available Annual Supply, ac-ft	Quality
Furnace Creek	GW/SW	1590	potable
Indian Rancheria	No Information	No Information	No Information
Death Valley Junction	GW	10-20	poor for household use
Centennial	GW/SW	2.97 (surface water)	good for livestock
Scotty's Junction	GW	1000	suitable for most uses
Lida, Nevada	GW/SW	15	good for all uses
Lida Ranch	GW/SW	No Information	Historically acceptable
GW = Groundwater SW = Surface water			

### III. POPULATION PROJECTION

The Timbisha population was projected for the next 100 years to help establish the water facilities requirements. A Needs Assessment study for the Timbisha Tribe completed in 1994 showed a total resident tribal population of 207 and a total tribal enrollment of 277 (Vallo & Assoc., 1994). The Tribe is currently completing a demographics study; the results for this study are not available.

The State of California has developed projections for American Indian population in Inyo County through the year 2040 (California DOF, 1998). These data show an average annual growth rate of 0.81 %. The population growth rate for Inyo County as a whole for the same period is reported at 0.73%. Nye County in Nevada reports a projected annual average growth rate of 3.5% for 2000 through 2018 (Nevada DWP, 2000), showing a significantly higher growth rate for Nevada than California. U.S. Census Bureau 1996 data for expected growth rates of American Indian, Eskimo and Aleut populations throughout the United States project an average growth rate of 1.5 % per year in year 2000, progressively leveling off to 1.1% annual growth rate after the year 2040.

The projected Timbisha Tribal membership was estimated based on an average 1.2-% annual growth rate to reflect both the national and regional trends. It is expected that following establishment of the Timbisha Reservation and development of suitable housing and economic opportunities, a significant number of "out of area" members will return to the Reservation. The projected number of households is based on 3.38 persons per household (Vallo & Assoc., 1994). The resulting population and housing estimates are summarized in Table 3.

### IV. WATER NEEDS ASSESSMENT BY PARCEL

A total of seven parcels of land are proposed to be taken into trust in association with the Timbisha Reservation. Potential land uses and the associated water demand were estimated for each parcel

#### 1. Furnace Creek

Furnace Creek will serve as the central location of the Tribal operations, provide community facilities, and limited housing. A total of 50 homes are projected in the Furnace Creek area. Land use and the estimated demand for the Furnace Creek Tribal Village to be located in death Valley National Park have been previously estimated (Bellinger, 1998; Timbisha & Department of Interior, 1999). The Furnace Creek needs were reviewed and are summarized in Table 4.



Table 3 Population and Household Projections		
Year	Tribal Population	Households
1994	277	82
2000	298	88
2010	335	99
2020	378	112
2030	426	126
2040	479	142
2050	540	160
2060	609	180
2070	686	203
2080	773	229
2090	871	258
2100	981	290
Note: 1994 base population source: Vallo & Assoc., 1994.		

Table 4 Furnace Creek Water Needs Summary	
Category	Water Use, ac-ft/yr
Domestic Supply	18.9
Garden	62.5
Inn	3.4
Inn Landscaping	16.0
Restaurant	1.2
Convenience Store	0.4
Community Center	2.0
Health Clinic	0.6
Tribal Offices	0.5
Cultural Center Museum	0.1
Total	105.6

The estimated water need is slightly higher than BOR estimate of 92 acre-ft/year, due primarily to the increased water needs associated with the domestic gardens and grounds at the Inn. The peak water demands were not evaluated, but should be incorporated into the infrastructure requirements, including fire flow provisions. Water quality was also not reviewed, but the domestic water component should be compliant with Safe Drinking Water Act provisions, as appropriate.



## 2. Indian Rancheria, California

The Indian Rancheria lands are comprised of two private parcels (40 acres and 80 acres). These lands are to be taken into trust under the Timbisha Shoshone Natural and Cultural Preservation Area component of the Homeland description. No land use or development description is described in the documentation and it is anticipated that the lands will provide open space and special use opportunities for the Tribe. No water need is associated with these parcels, but protection and maintenance of the natural water supply to support the open space and designated special uses is implied.

## 3. Death Valley Junction, California

The Death Valley Junction parcel is comprised of approximately 1,000 acres located in Inyo County, California at the junction of Highways 127 and 190, the latter being the main entrance road for the Park. The parcel land use is identified for residential and economic development. Approximately 10-20 acre-feet of marginal quality groundwater is estimated to be available annually at this site.

Due to the location of the parcel, it may be appropriate to support limited tourist lodging and resort-type development. Water demands for a small inn and convenience facilities and four residences were estimated, as summarized in Table 5. The land use was based on a water supply of 15 ac-ft/yr. Alternately, several more residences may be supported in place of lodging facilities.

Table 5 Death Valley Junction Water Needs Summary	
Category	Water Use, ac-ft/yr
Domestic Supply	1.52
Garden	4.2
Inn (25 rooms)	1.7
Inn Landscaping	6.7
Restaurant	0.6
Convenience Store	0.4
Total	15.12

## 4. Centennial, California

The Centennial parcel is comprised of approximately 640 acres located in Inyo County, California. This parcel is identified for residential and small-scale economic development. However, due to the limited and uncertain water supply for this site, combined with the remote location, only residential development was considered.

Local water supplies consist of both surface and ground waters. A potential source for surface water is Lower Centennial and Black Rock Springs. Water right holdings exist on both springs totaling 2.97 acre-feet/year. Ground water availability is currently unknown. Estimated water demands for two residences on the Centennial parcel are presented in Table 6 assuming water rights to the spring flows can be obtained.



Table 6 Centennial Water Needs Summary	
Category	Water Use, ac-ft/yr
Domestic Supply	0.76
Garden	2.1
Total	2.9

#### 5. Scotty's Junction, Nevada

The Scotty's Junction parcel is located in Nye County, Nevada and is comprised of approximately 2,800 acres. This parcel is identified for residential and economic development.

Local water supply consist of groundwater, which is typically located at 200-300 feet depth. The annual yield in the valley in which Scotty's Junction is located is about 3,000 acre-feet. Current water use in the basin is between 1,200 and 2,000 acre-feet; it is approximated that 1,000 acre-feet per year will be available for use on the Reservation parcel. Because this is the only outlying parcel having groundwater in sufficient quantity to support significant development, it is anticipated that the majority of housing and economic development will occur at this location. A total of 224 residences were located on the Scotty's Junction parcel.

Specific land use and development plans have not been proposed for the land tract. However, a significant population will be located in this area, and some community, retail, and convenience facilities will be located in association with the housing development. In the absence of specific land planning, an water demand allocation for community facilities was provided for a broad range of facilities that could include service stations, schools and day care, recreation centers, retail, and convenience sales. The parcel should also reasonably support some level of economic development in association with the population base. A resort facility and light industry were preliminarily estimated, though an economic analysis was not conducted to support the land use designations. Estimated water demands for the Scotty's Junction parcel are presented in Table 7.

Table 7 Scotty's Junction Water Needs Summary	
Category	Water Use, ac-ft/yr
Domestic supply	85.1
Garden	235
Undefined community and institutional facilities	42.5
Resort, 10,000 sq ft	6.7
Hotel, 100 rooms	3.4
Light industry, 50 persons	2.8
Total	375.5

Limited heavy industry or additional tourist facilities could also be considered for the Scotty's Junction parcel. The type of economic development would be established to meet the tribal objectives. Most economic development opportunities will be limited to some degree by the water supply.



## 6. Lida – Tribal Community Parcel

The Lida parcel is designated for residential and economic development; the site is also referred to as Lida Summit in the documentation. The land area is a mix of gradual and steep and rugged slopes. The water available at this parcel is approximated at 15 ac-ft/yr, but could be as little as 3 ac-ft/yr, depending on water rights. Due to the limited water available at the site, development will likely be limited to 10 residences and a small convenience store. The water needs for the Lida site are summarized in Table 8.

Table 8 Lida Needs Summary	
Parcel	Water Need, ac-ft/yr
Domestic	3.8
Garden	10.5
Convenience Store	0.4
Total	14.7

## 7. Lida Ranch

The Lida Ranch Parcel is designated for potential residential and economic development. Water supply information for Lida Ranch is not presented, although the historic reference to gardening, forage crops, and ranching are made. The Lida Ranch proposal includes “purchase of appurtenant water rights for the Tribe”. For the purposes of this needs assessment, the water supply at Lida Ranch should be sufficient to support the housing and ranching functions associated with the parcel. The Tribe may choose to enhance the ranching operation by providing accommodation facilities at the ranch or support other Tribal activities such as supplies, pack animals, and other similar operations.

## V. NON-AGRICULTURAL WATER NEEDS SUMMARY

Non-agricultural water needs were estimated for the parcels identified for inclusion in the Timbisha Reservation. The assessment provides for housing and support services for the projected population over the next 100 years. The water needs and distribution of housing units are summarized in Table 9.

Table 9 Timbisha Shoshone Non-Agricultural Water Needs Summary		
Parcel	Water Need, ac-ft/yr	Housing Units
Furnace Creek	105.6	50
Indian Rancheria	0	0
Death Valley Junction	15.1	4
Centennial	2.9	2
Scotty's Junction	375.5	224
Lida	14.7	10
Lida Ranch	0	0
Total	513.8	290



## References:

- Bellinger, T.R. 1998. Estimated Present and Future Water Use for the Timbisha Shoshone Tribe – Furnace Creek Indian Village Death Valley National Park, CA. January.
- Bellinger, T.R. 1999. Timbisha Shoshone Land Base Negotiations. Related Water Information. July 15.
- California Department of Water Resources. 1998. California Water Plan Update. Bulletin 160-98.
- California State Department of Finance. 1998. County Population Projections.
- Nevada Division of Water Planning. 2000. County Socioeconomic Overview. <http://www.state.nv.us/cnr/ndwp>.
- Pruitt, W.O., E. Feres, K.Kaita, and R.L. Snyder. 1987. Reference Evapotranspiration (ET<sub>o</sub>) for California. UC Bulletin 1922.
- Timbisha Shoshone Tribe and Department of the Interior. 1999 (est). The Timbisha Shoshone Homeland. A Draft Secretarial Report to Congress to establish a Permanent Tribal Land Base and Related Cooperative Activities.
- U.S. Department of the Interior. 1999. Summary Document Related to Water Resources for the Proposed Timbisha Shoshone Tribal Homeland. Draft Report. December.
- Vallo & Assoc. 1994. Tibisha Shoshone Tribe Tribal Needs Assessment and Socio-Economic Profile.
- Werrel, W.L. 1998. Ground Water Resource Issues of Death Valley National Park Related to Timbisha Shoshone Proposed Reservations.



**APPENDIX J**

**APPLICABLE LAWS  
FOR ENVIRONMENTAL PROTECTION**







## **APPENDIX J: APPLICABLE LAWS FOR ENVIRONMENTAL PROTECTION**

This Appendix summarizes the legislative and regulatory framework that, in addition to National Environmental Policy Act (NEPA) guidelines, would be addressed as part of the lands proposed for transfer, acquisition and transfer, and cooperative activities/special use areas for the Timbisha Shoshone Homeland Act. Various aspects of the Timbisha Shoshone Homeland Act must be in compliance with applicable federal and state environmental requirements. Numerous different acts, codes, rules, and regulations have environmental issues that are addressed in Chapters 3.0 and 4.0.

NEPA provides that any “proposal for legislation” must be accompanied by an Environmental Impact Statement (EIS). (42 U.S.C.A. 4332(2)(C).) When agencies request legislation to initiate a substantive program (such as the transfer of lands, acquisitions and transfers, and cooperative activities proposed in the Timbisha Shoshone Homeland Act), NEPA therefore demands that an EIS be prepared on the program.

### **Relationship between NEPA and Other Federal Statutes**

The language of NEPA provides that nothing in it changes the “specific statutory obligations” of federal agencies to comply with other laws protecting the environment, and that the policies of NEPA are “supplementary” to the existing statutory authorizations of federal agencies. (42 U.S.C.A. 4334, 4335.) The U.S. Supreme Court has construed these provisions to exempt federal agencies from NEPA when there is a direct statutory conflict with their enabling legislation. (*Flint Ridge Development Co. v. Scenic Rivers Association* (1976).)

When there is no direct conflict, courts will exempt agencies from NEPA if agency action pursuant to an environmental statute is the “functional equivalent” of NEPA review. (*Portland Cement Association v. Ruckelshaus* (1973).) The functional equivalency test has particular applicability to the Environmental Protection Agency. Most of Environmental Protection Agency’s regulatory activities under the federal Clean Air Act and Clean Water Act have been deemed so similar to NEPA that separate EIS review is unnecessary. Even if the functional equivalence exemption is not applicable, courts may excuse agencies from EIS preparation if the agency’s statutory duties further NEPA’s purposes.

### **Air Quality—Clean Air Act (CAA)**

Short-term impacts associated with the proposed land transfer for the Timbisha Shoshone homeland would be subject to federal rules and regulations, as implemented through the provisions of the Clean Air Act, pertaining to the control of air pollutants emitted into the atmosphere. Region IX of the Environmental Protection Agency would have federal jurisdiction over the area.

The Clean Air Act was established in an effort to ensure that minimum levels of air quality are maintained in all areas of the United States. These minimum levels are termed the National Ambient Air Quality Standards (NAAQS). The NAAQS are legal limits on the allowable ambient levels of air pollution. Pollutants for which NAAQS have been established are nitrogen dioxide, sulfur dioxide, carbon monoxide, suspended particulate matter less than 10 microns in aerodynamic diameter, ozone, and lead. These are often termed criteria pollutants. The State of California has state standards for these pollutants and has additional standards for sulfates, hydrogen sulfide, vinyl chloride (chloroethylene), and visibility reducing particles.

There are primary and secondary NAAQS. The primary standards are intended to reflect levels of air quality deemed necessary to protect the public health and incorporate an adequate margin of safety. The secondary standards reflect the levels of air quality necessary to protect public welfare from any other known or anticipated adverse effects of a pollutant (e.g. effect to wildlife or visibility). Most areas of the



country were required to attain the primary standards no later than December 31, 1982, with conditional extensions to 1987 granted to certain problem areas.

The Clean Air Act states that no department, agency, or instrumentality of the federal government shall engage in, support in any way, or provide financial assistance for, license, or permit, or approve any activity that does not conform to an applicable implementation plan. Under CAA 176(c) and 40 C.F.R. Part 93 Subpart W, a federal agency must make a determination that a federal action conforms to the applicable implementation plan before the action is taken. This applies to actions inside federal nonattainment areas. In the case of this action, the Centennial parcel will have to have a conformity analysis as it is in the federal Owens Valley PM10 nonattainment area.

The locations proposed for land transfer for the Timbisha Shoshone homeland are located in areas classified as nonattainment.

### **Water Quality—Clean Water Act (CWA)**

The federal Clean Water Act was originally enacted in 1972, and then amended in 1977, 1987, and 1990. (33 U.S.C.A. 1251–1387; Public Law 95–217 (1977 Amendments)). The CWA sets out three goals: (1) the elimination of the “discharge of pollutants into navigable water” by 1985; (2) the establishment of waters with quality sufficiently high to be both “fishable and swimmable” by 1983; and (3) the end of “discharges of toxic pollutants in toxic amounts.” (33 U.S.C.A. 1251(a).) The CWA regulates discharges to surface waters from all types of sources. Discharges to surface water are subject to the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, which ensures that the water meets applicable standards at the point of discharge. The NPDES provisions are contained in Section 402 of the Clean Water Act.

Section 404(a) of the CWA authorizes the Army Corps of Engineers to issue permits for the discharge of dredged or fill materials into navigable waters at particular sites. (33 U.S.C.A. 1344(a); *Monongahela Power Co. v. Marsh* (1987) (a 404 permit is required to discharge fill material into waters during construction of hydroelectric facility licensed by the Federal Energy Regulatory Commission).) A Section 404 permit may be required for parcels requiring fill for road crossings, or major grading operations.

### **Water Rights—State Water Law and Federal Reserved Water Rights Doctrines**

#### Prior Appropriation Doctrine and the Quasi Appropriation-Riparian Doctrine

The Prior Appropriation Doctrine is the established rule for Nevada whereas California is governed by a quasi Appropriation-Riparian Doctrine. Although in both riparian and appropriation systems the legal property interest is the right to the use of the water, not the water itself, there are significant differences in the doctrines. Ownership of riparian land is not the basis for the appropriation water right; the water right exists when water is appropriated (diverted and used) for a beneficial purpose. Appropriated waters need not be used on riparian lands and there is no watershed limitation. Appropriated waters may be used any place, regardless of the distance from the stream. There is no reasonable use limitation; the extent of the water right is the amount that historically was put to a beneficial purpose. In an appropriation system the water right has a “priority” date, which is the date of the original appropriation. The senior appropriation right is entitled to full delivery of water, which must be accomplished before the next junior appropriator is entitled to take water. Appropriative rights are acquired by use and may be lost by non-use.



## Federal Reserved Water Rights Doctrine

Unique physical constraints are controlling factors in the establishment of water rights for the proposed land parcels. These constraints arise from the physical features associated with the Death Valley area; that is Death Valley is recognized as the hottest driest area of North America. Water resources of this area are finite and are being vigorously pursued for development by multiple competing interests. The National Park Service believes the regional groundwater aquifer already may be stressed. The establishment of water rights for Proposed Action in this area must take into consideration these physical limitations.

Furthermore, by virtue of numerous statutes, including the Organic Act of 1916 and the California Desert Protection Act of 1994, as well as the U.S. Supreme Court decision in *Cappaert v. United States*, 42 U.S. 128 (1976), the National Park Service has a statutory duty as well as the legal ability to protect the water rights and water-related resources of Death Valley National Park. This mandate obligates the National Park Service to obtain protection for these rights and resources by whatever means are deemed prudent and effective, including limitations on groundwater development in areas hydrologically connected to the Park's water resources.

## **Endangered Species—Endangered Species Act (ESA)**

The federal Endangered Species Act (ESA) of 1973, as amended, (16 U.S.C.A. 1531–1543) extends legal protection to plants and animals listed as endangered or threatened by the U.S. Fish and Wildlife Service (USFWS). The ESA authorizes USFWS to review proposed federal actions to assess potential impacts to “listed” species.

Listed species are those that are threatened or endangered (in danger of extinction throughout all or a significant portion of their range) and that have been the subject of final regulation and listing in the *Federal Register*, and those species officially proposed for listing in a *Federal Register* notice.

Section 7 of the ESA, requires federal agencies, in consultation with the USFWS, to ensure “that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any listed species or result in the destruction or modification of [critical] habitat.”

The ESA establishes a process by which federal agencies must provide “biological assessments” of actions potentially affecting listed species or their habitat and of: (1) all actions that “take” an endangered or threatened species and (2) federal agency actions that “jeopardize” the continued existence of listed species, that result in “destruction or adverse modification” of habitat of such species, or that are inconsistent with the “conservation” of listed species. This step may be followed by a Section 7 or Section 10 “consultation” with the USFWS and the preparation of a “biological opinion” that assesses whether the action can occur in light of the harm to the species or its habitat. (16 U.S.C.A. 1538(a)(1)(B) and (C).)

## **Cultural Resources**

### National Historic Preservation Act (NHPA) of 1966

The National Historic Preservation Act (NHPA) of 1966, as amended, established: (1) a National Register of Historic Places (NRHP) to be maintained by the Secretary of the Interior; (2) the position of State Historic Preservation Officer (SHPO); and (3) the Advisory Council on Historic Preservation (ACHP). Section 106 of the NHPA requires federal agencies to provide the SHPO and ACHP an opportunity to comment on any project on federal lands within their state that would affect properties included in or eligible for inclusion in the NRHP. Section 101(d)(6) of the NHPA requires consultation with Native



American tribes regarding federal actions that might affect properties of religious or cultural significance. Section 304 directs federal agencies to withhold from disclosure to the public information relating to the location or character of eligible properties whenever disclosure of such information may create risk or harm to such resources. NRHP eligibility criteria are specified in 36 C.F.R. Part 60.4.

The ACHP regulations outline procedures to be followed by federal agencies (51 *Federal Register*, 31,118; September 1986). Federal agencies are required to consult with the SHPO to determine if a proposed undertaking encompasses any property included in or eligible for inclusion in the NRHP. For each eligible property identified, the federal agency must determine if the proposed undertaking would have an effect. If there could be an effect, the Criteria of Adverse Effect are applied, and treatment measures are developed for resources that would be adversely affected. The regulations provide for consultation with the SHPO and ACHP to develop conditions for a Memorandum of Agreement for mitigation of potential adverse effects.

Within the statutory constraints (NHPA Section 304 and the Archaeological Resources Protection Act of 1979, Section 9), the ACHP regulations encourage participation by local governments, Native American tribes, and the public. Within this context, comments on the Proposed Land Transfers for the Timbisha Shoshone homeland are sought from the Timbisha Shoshone Tribe, other local Native Americans, archaeologists, historians, and other groups or individuals concerned with cultural resources.

#### American Indian Religious Freedom Act of 1978

The American Indian Religious Freedom Act of 1978 resolves that it shall be the policy of the United States to protect and preserve for Native Americans, their inherent right of freedom to believe, express, and exercise their traditional religions.

#### **Landuse Management and the Law of Public Lands and Resources**

The lands proposed for transfer, acquisition and transfer, and cooperative activities are located in two states (California and Nevada) and governed by three different federal agencies (National Park Service, Bureau of Land Management, U.S. Fish and Wildlife Service). This section will list the applicable statutory authority for NPS, BLM, and USFWS lands in the proposed legislation.

In regards to the lands located outside Death Valley National Park, the Public Rangelands Improvement Act of 1978 (PRIA) and the Federal Land Policy Management Act (FLPMA) of 1976, Section 601, required BLM to develop a plan to provide for the immediate and future protection and administration of the public lands in the California desert within the framework of a program of multiple use and sustained yield, and the maintenance of environmental quality.

#### Wilderness in BLM Lands—FLPMA

Because of the desert nature of BLM lands, as well as their historic use by grazing and mining interests, only a fraction of the areas studied for the proposed legislation are to be designated as wilderness. Management of Wilderness Study Areas (WSAs) on BLM lands is pursuant to two statutes—FLPMA and NEPA. Section 1782(c) of FLPMA provides that WSAs should be managed “so as not to impair [their suitability] as wilderness.”



## Wilderness in NPS and Wildlife Refuges—FLPMA

As a result of the original Wilderness Act's requirement that the NPS and USFWS review their lands for wilderness potential, nearly 60 million acres have been added to the National Wilderness Preservation System (NWPS) (37 million acres from parks and 20 million acres from wildlife refuges).

## National Wildlife Refuge System—National Wildlife System Administration Act of 1966

Federal wildlife refuges are managed by the USFWS pursuant to the National Wildlife System Administration Act of 1966, 16 U.S.C.A. 668dd. This act consolidated all existing refuges into one land management system. Since some of the refuges were originally established for grazing of domestic livestock, certain refuges are managed both for the protection of wildlife habitat and livestock grazing. (*Schwenke v. Secretary of Interior* (1983).) This act is relevant to the proposed cooperative activities at Ash Meadows National Wildlife Refuge.

The 1966 act authorizes the Secretary of the Interior to allow uses within refuges “for any purpose...whenever he determines that such uses are compatible with the major purposes for which such areas were established.” (16 U.S.C.A. 668dd(d)(1).) Although the National Wildlife Refuge System is to be managed primarily to provide habitat for wildlife, the USFWS is authorized to permit uses in refuges for “any purpose” that is “compatible with” this primary purpose.

## California Desert Protection Act (Public Law 103-433)

In accordance with the FLPMA, the California Desert Conservation Area (CDCA) Plan was developed for BLM management of the public lands of the California desert. Approximately 12.1 million acres of federal lands are administered by BLM under the CDCA Plan. The CDCA encompasses the Mojave, Sonoran, and Great Basin deserts located in southeastern California, including five out of the seven sites proposed for land transfer for the Timbisha Shoshone homeland. The main purpose of the CDCA Plan is to protect and enhance the desert environment, while providing for the use of public lands within a multiple-use framework.

Under FLPMA, previous laws governing the disposal of public lands are repealed. Public lands are retained by the federal government for multiple-use and sustained-yield management. Congress was given the power to withdraw, dedicate, or, designate federal lands for specified purposes. FLPMA gives BLM authority to manage public lands for long-term benefits.

## Private Holdings

The Homestead Act of 1862 authorized citizens free entry onto 160 acres of land. Settlement of arid land beyond the 100th meridian was encouraged by the Timber Culture Act of 1873 (additional land if trees planted), the Desert Lands Act of 1877 (entry and patent if land irrigated), the Enlarged Homestead Act of 1909 (entry allowed upon 320 acres instead of 160 acres), and the Stock-Raising Homestead Act of 1916 (entry allowed on 640 acres of semi-arid land designated valuable for livestock grazing). With the passage of the Taylor Grazing Act in 1934 (43 U.S.C.A. 315 et seq.), the era of homesteading and uncontrolled grazing on public lands came to an end. But by then the settlement of the United States had largely been completed. The above doctrines are particularly relevant to the lands that are proposed for acquisition and transfer to the Tribe.



### Wild, Free-Roaming Horses and Burros Act of 1971

Wild horses and burros living on BLM and Forest Managed Lands are protected by the Wild, Free-Roaming Horses and Burros Act of 1971 (16 U.S.C.A. section 1331). This act prohibits the wanton killing, harassment, or capturing of wild horses and burros, even if they wander onto private land. An authorized officer can remove wild horses or burros from private lands after the landowner notifies him or her in writing. An authorized officer may enter the property upon receiving written consent of the private landowner (43 C.F.R. 4720.2-1 and 4720.2-2). Because these animals have no natural predators, and because they are now federally protected, their numbers have risen dramatically. To cope with escalating populations of wild horses and burros, federal managers may either destroy those that are old or sick (16 U.S.C.A. 1333(b)(2)), or put healthy animals up for adoption. If the latter course of action is taken, federal officials have an obligation to ensure that the "adoptions" are not to make commercial use (i.e., dog food) of the adoptees. (*Animal Protection Institute v. Hodel* (1988).)

### Concessions, Support Facilities, and Services within Death Valley National Park

Profit-making, privately owned, concessionaire-supplied services are an integral part of the National Park system. Private concessioners may provide food, lodging, and other amenities of civilization. (*Sierra Club v. Lujan* (1989)(proposed hotel on north rim of Grand Canyon).) They are licensed by the NPS pursuant to the Park System Organic Act of 1916 (16 U.S.C.A. 3), and the Concessions Policy Act of 1970 (16 U.S.C.A. 20).

### Mining—Mining in the Parks Act of 1976 and the 1872 Mining Law

The 1872 Mining Law provides for surface access by owners of unpatented mining claims the public domain. FLPMA reaffirms access rights, subject to regulations "to prevent unnecessary or undue degradation of the lands." (43 U.S.C.A. 1732(b).) Such access rights are not exclusive to the owner of the unpatented mining claim; the public has a right of free access to the surface of a mining claim for recreational use or access to adjacent land. (*Silbrico Corp. v. Ortiz* (1989); *U.S. v. Fahey* (1985).) Further the Mining in the Parks Act of 1976 (which is pertinent to lands within Death Valley National Park), does the following:

- Authorizes new regulations to protect the natural features of NPS areas as valid mineral rights are exercised.
- Closes natural areas under NPS jurisdiction to further mining entry or location of mining claims.
- Requires a confirmation of all unpatented mining claims with the superintendent.
- Requires that acquisition costs and environmental consequences of mining all valid and patented claims be determined.
- Makes recommendations on claims that should be acquired or boundary changes that may be necessary to exclude significant deposits and reduce the cost of acquisition.

### National Park Service Organic Act

Within the Department of the Interior, the National Park Service was established to promote and regulate the use of federal areas designated as national parks, monuments, and reservations as specified by law to conserve the scenery, natural and historic objects, and wild life to provide for the enjoyment of the same



in such a manner and by such means as will leave them unimpaired for the enjoyment of future generations (16 U.S.C. 1 et seq. (1988), August 25, 1916, ch. 408, 39 Stat. 535.)

#### General Authorities Act of 1970

This act amends the organic act to specify that the National Park System shall include any area of land and water now or hereafter administered by the Secretary of the Interior through the National Park Service for park monument, historic, parkway, recreational, or other purposes (16 U.S.C. 1a-1 to 1a-8 (1988), 84 Stat. 825, Public Law 91-383.) Areas of the National Park System, the act goes on to state, “though distinct in character, are united through their inter-related purposes and resources into one national park system’s cumulative expressions of a single national heritage; that, individually and collectively, these areas derive increased national dignity and recognition of their superb environmental quality through their inclusion jointly with each other in one national park system preserved and managed for the benefit and inspiration of all people of the United States...”

#### Redwood National Park Act

In amending the General Authorities Act of 1970, the Redwood National Park Act reasserted systemwide the high standard of protection prescribed by Congress in the original organic act (16 U.S.C. 79a-79q (1988), 82 Stat. 931, Public Law 90-545.) “Congress further reaffirms, declares, and directs that the promotion and regulation of the various areas of the National Park System...shall be consistent with and founded in the purpose established by the first section of the Act of August 25, 1916, to the common benefit of all the people of the United States. The authorization of activities shall be construed and the protection, management, and administration of these areas shall be conducted in light of the high public value and integrity of the National Park System and shall not be exercised in derogation of the values and purpose for which these various areas have been established, except as may have been or shall be directly and specifically provided by Congress.”

#### Archeological Resources Protection Act of 1979

The Archeological Resources Protection Act (ARPA) is a wide-ranging piece of legislation designed primarily for the protection of archeological resources on public and Native American lands. (16 U.S.C. 470aa (1988), 93 Stat. 721, Public Law 96-95.) ARPA is the principal protection and enforcement authority for archeological resources in the National Park System. The act blends cooperative effort, educational activities, and reporting requirements for acts of looting and vandalism with an improved enforcement authority.







## **APPENDIX K**

### **GEOLOGY**







## **APPENDIX K: GEOLOGY**

This section describes the geologic and soil settings for each of the lands proposed for acquisition and transfer, and cooperative activities/special uses. This section was prepared based on published data of the U.S. Geological Survey (USGS), and the California Division of Mines and Geology (CDMG).

### **Regional Setting**

#### **Geological Resource Management and Soil Plans and Policies**

The National Park Service (NPS) and the Bureau of Land Management (BLM) provide geological resource management and soil plans and policies for lands under their jurisdictions. These policies are discussed below.

#### **National Park Service: Death Valley National Park**

The NPS's policies for protecting geologic features and soil resources include:

- Park geologic features will be protected. Certain fragile geologic features, such as geysers, caves, sand dunes, and arches, will be monitored to determine if measures are needed to prevent or stop human-caused damage.
- The NPS will actively seek to understand and preserve the soil resources of the park and to prevent, to the extent possible, the unnatural erosion, physical removal, or contamination of the soil, or its contamination of other resources.
- Resource managers will create, where appropriate, detailed soil maps, define the distribution of soil series, determine the physical and chemical characteristics of the soil series, and provide interpretations needed to promote soil conservation and to guide resource management and development decisions.
- Potential impacts on soil resources will be routinely monitored. Management action will be taken to mitigate adverse, potentially irreversible, impacts on soils caused by heavy visitor use around major Park attractions and facilities. Conservation and soil amendment practices may be implemented to reduce impacts.
- Importation of nonnative soil amendments or other soil materials may be necessary to mitigate degradation, but this alternative must be deemed appropriate by an agronomist or trained soil management specialist and designed to avoid introduction of exotic species.
- Restore to natural appearance, inasmuch as is feasible, the land surfaces disturbed by man, recognizing that significant cultural values must be preserved.
- Provide for the reclamation of mining areas and the eventual completion or phaseout of mining.
- Perpetuate unimpaired the Park's cultural and archeological resources, protecting them from vandalism, unauthorized excavation, collection, or appropriation.
- Protect the Park's collections of natural and cultural objects from deterioration, natural disaster, misuse, and loss.



## **Bureau of Land Management: Tonopah Field Station, Nevada**

The BLM's, Tonopah Field Station has jurisdiction over the Lida Community Parcel, Lida Ranch, Lida Tribal Use Area, and Scotty's Junction and uses the following geological resource management measures:

- There should be access to land where the mineral estate is in federal ownership.
- The entire county should be kept open for prospecting, mining, and related activities.
- The Federal Mining Law of 1872 should remain in effect as the basic law relating to mining activities.

### **Regional Topography**

The Timbisha Shoshone ancestral homeland includes flat, desert valleys and rugged mountains. Elevation ranges from over 11,000 feet above sea level to more than 200 feet below sea level in Death Valley. The proposed Timbisha Shoshone trust lands are on the southwestern edge of the Basin and Range geomorphic province, a region of discontinuous north-south trending mountain ranges that extends from the Death Valley region over virtually all of the Great Basin to the Rocky Mountains. The Basin and Range province includes most of Nevada and portions of California, Oregon, Idaho, Utah, Arizona, New Mexico, and the Sonora district of Mexico. The province is characterized by alternating sequences of steep mountain ranges and flat valleys in a north-south orientation. These features are the result of tectonically generated crustal extension where fault-bounded blocks dropped downward relative to adjacent blocks to create series of mountains and valleys. Sediment derived from the mountain blocks (horsts) was subsequently deposited into, and partially filled, the valleys. The Basin and Range extension is generally believed to have occurred about 3 to 5 million years ago (Ma) (Hildreth 1976).

The Death Valley region is dominated by elongate mountain ranges and flat, desert valleys. The slopes of the mountain ranges are typically steep to moderately steep, with narrow, deeply incised, steep-walled canyons. In many ranges, the slopes of one side are steep while slopes on the other side are of a uniformly lower angle as a result of the relative motion of the mountain fault block. Most current physiographic features are controlled by faults, rock types, bedding planes, or the rapid erosion/deposition features associated with desert flash-flooding events. Lower-angled features and valleys are similarly dominated by alluvial deposits, fine-grained sediment associated with playa lakes resulting from rapid runoff, or older lake deposits. In general, areas of significant relief and steep topography are associated with concentrations of faulting and associated tectonic activity, and more moderately sloped areas and flat valleys are associated with long periods of seismic dormancy, progressive erosion, and accumulation of alluvium.

### **Geology, Faulting, and Seismicity**

#### **Geologic History Summary**

The oldest geologic features in the Death Valley region are approximately 1.7 billion years old (Hunt 1966) to 1.8 billion years old (Hildreth 1976). These features consist of crystalline basement rocks composed primarily of granitic gneiss and schist. This crystalline basement is overlain by Precambrian (>500 Ma) sedimentary sequences of clastic rocks (sandstone, siltstone, and shale) and carbonates (limestone and dolomite). The latter portion of Precambrian time in the Death Valley region was dominated by clastic marine sediments indicating deposition on a continental shelf (along the ancient North American coast) resulting from significant erosion on the adjacent continental landmass to the east. The onset of the Paleozoic time period (570–250 Ma) is marked by a transition from predominantly



clastic sediment to carbonate sediment as the continental shelf became stable, erosion rates on the adjacent landmass decreased significantly, and most of what is now the Great Basin was covered by a broad, warm, shallow sea. Fossil evidence of shallow marine fauna in this sea is often abundant in Paleozoic strata of the Death Valley region. This depositional environment of this sea was very similar to what is currently observable in the Bahamas and Florida Keys.

The shallow marine environment remained essentially stable for approximately 300 million years until it was disrupted by volcanic activity and the initial uplift of the Sierra Nevada mountain range to the west during the Mesozoic era (250–65 Ma). The rise of the Sierras cut off and slowly drained the shallow sea, and the Death Valley region became a highland area. During this period the coastline of western North America moved westward about 200 miles by the accretion of island landmasses against the continent. Tectonically-driven horizontal crustal compression during this period over a vast region of the western U.S. caused thrust faulting, folding, and crustal melting. Folded strata and faulting from this period is evident throughout the Death Valley region. Evidence of the associated igneous activity is displayed in the granitic rocks of the Argus Range, Owlshead Mountains, Manley Peak, Hunter Mountain, and other areas, and in the diorite intrusions of the Black Mountains.

For the next 35 million years during early Tertiary time the region was geologically quiet until disrupted by another episode of volcanic activity and faulting about 30 million years ago (Miocene). The onset of the Basin and Range crustal extension and faulting during this time created most of the current topography of north-south trending valleys and mountain ranges throughout the Timbisha Shoshone homeland and the Great Basin. During the subsequent Quaternary time period (Pleistocene-Holocene) considerable additional faulting, erosion of highland areas, and deposition in low areas proceeded along with some additional volcanic activity. Geologic features from this period include alluvial fans, playa and lake deposits, sand dunes, and basaltic cinder cones.

During Pleistocene time (~2 Ma to 10,000 years ago), periods of glaciation and rainfall over much of North America contributed to water runoff that filled Death Valley (Lake Manley), Panamint Valley (Panamint Lake), the Shoshone-Tecopa basin (Lake Tecopa), and the Trona area (Searles Lake). Wave-cut terraces (strandlines) and other indicators of the shorelines of these ancient lakes are evident throughout each of the respective valleys. Unconsolidated fine-grained sediment in the floor of these valleys once lined the bottom of the lakes. The vertical relief from the uppermost shoreline terraces to the base of Death Valley indicates that Lake Manly was as much as 600 feet deep. There is also evidence of additional smaller lakes that have been present in the last 10,000 years (Holocene) and may have been present during the lives of some of the earliest Timbisha Shoshone people.

## **Stratigraphy**

In the Timbisha Shoshone homeland area, Precambrian basement rocks primarily of granitic gneiss, schist, and metamorphosed volcanics are unconformably overlain by Precambrian sedimentary rock units consisting primarily of marine clastics and dolomitic carbonates. Late Precambrian to early Cambrian rocks are dominantly clastic, marine, and middle Cambrian through Paleozoic rocks are carbonate (Hunt 1960). Paleozoic deposits represent a vertical accumulation of about 25,000 feet. The Paleozoic section is well represented throughout the region except within a structural unit known as the Black Mountain Wedge (Noble 1954), where it is poorly represented and complexly deformed. The Black Mountain Wedge is bounded by Death Valley on the west and south, and by the Amargosa Valley and Furnace Creek Wash on the north and east. Because lithologically similar Paleozoic sections are present on both sides of the wedge, it is assumed that a comparable thickness was once present and has since been uplifted and eroded.



Mesozoic intrusive rocks crop out throughout the area and range in composition from granite, granodiorite, and quartz monzonite to tonalite and diorite (Jennings, Burnett and Troxel 1962). Other Mesozoic rocks include some shale and metavolcanic rocks (Smith et al 1968).

Tertiary volcanic and sedimentary rocks (shales, siltstones, sandstones, and conglomerates) are widespread in the Death Valley area. The oldest tertiary rocks exposed in the region are the Oligocene Titus Canyon and Artist Drive Formations (Noble 1954). Some of the representative volcanic deposits in the region include the Greenwater Volcanics, Shoshone Volcanics, and volcanic deposits of the Slate Range.

The principle Quaternary deposits in the region include lacustrine sediments associated with Pleistocene and more recent lakes, smaller playa lake deposits, large alluvial fans and alluvial valley fill deposits consisting of poorly sorted pebbly sand to boulder gravel, and aeolian (windblown) sands.

### **Structure, Faulting, and Seismicity**

Death Valley and Panamint Valley are valleys bounded by a series of northwest-trending, block faulted, east-dipping mountain ranges. These mountains are underlain by Precambrian to Paleozoic sedimentary and metamorphic rock units, Mesozoic intrusive rocks, and Tertiary and Quaternary sedimentary and volcanic rocks.

Extensive faulting throughout the geologic history of the region is abundantly evident. Precambrian and Mesozoic structural events appear to have been dominated by high-angle faulting while the Tertiary period was dominated by low-angle detachment faulting associated with extensional tectonics in addition to higher angle faulting associated with mountain and valley structures. More recent faulting appears to be associated with higher angle faulting including both vertical and transverse types. The northwest trending Furnace Creek, Death Valley, and Panamint Valley fault zones, and the east-west trending Garlock Fault Zone transect the region and are responsible for much of the late Cenozoic topographic trends (Noble 1954). Numerous active faults (displacement within the last 10,000 years) within the region have been mapped by Jennings (Figure 1). Many of these are in the vicinity of the proposed Timbisha Shoshone trust parcels. Table 1 is a summary of seismicity parameters for a study site within Panamint Valley. These parameters are also generally representative of the Timbisha Shoshone Trust parcels.

### **Soils**

Soils at the subject parcels are typical desert soils composed variously of alluvium, colluvium, and playa deposits. The thickness of alluvial deposits varies from very thin to very thick, possibly hundreds to thousands of feet deep. Colluvium typically represents a much thinner blanket on slopes over relatively shallow bedrock. Soil types in playas, floodplains, and flat-lying outwash areas are typically silt, clay, and ash. In some of these areas the surface soil cover is modified by wind such that the fine-grained component is missing and a desert pavement of heavier particles that are resistant to wind movement covers the ground. Other soil types range from sand to gravelly sand to sandy gravel. All of these soil types generally contain little organic matter and have a high lime content. Agricultural endeavors in these soils have a low likelihood of success without irrigation and other special soil management techniques.

### **Site-Specific Topographic, Geological, and Soil Conditions**

The Proposed Action is to establish a permanent tribal land base and related cooperative activities within the Timbisha Shoshone ancestral homeland. The following discussion details geological resources occurring on lands proposed for transfer, acquisition and transfer, and cooperative activities/special uses.



## **National Park Service**

### **Land Transfer in Trust**

#### **Furnace Creek**

Geologic features of the Furnace Creek parcel include the broad alluvial fan associated with Furnace Creek, eroded remnants of former alluvial fans, and portions of the adjacent playa deposits to the west. The alluvium comprises a diverse mix of rocks of almost every type derived from the highland areas to the east as well as from reworked older alluvium. Surface cover ranges from cobbles, boulders, and sand to silt. Playa deposits and fine-grained sediment outwash from the alluvium occur in flat-lying areas and low-lying or low-angle drainages. Some fine-grained deposits show evidence of mud cracks, suggesting a clay component to the soil.

### **Proposed Authorization of Land Acquisition**

#### **Indian Rancheria**

The Indian Rancheria private parcels are within an alluvial plain that includes playa deposits, alluvial flood deposits, and fine-grained outwash deposits originating from a variety of rock types. The topography is essentially flat, with only minor relief along drainages. Development of desert pavement is frequently extensive. Fine-grained deposits locally demonstrate mud crack features suggesting a clay component.

### **Tribal Cooperative Activity/Special Use Areas**

#### **Furnace Creek—Tribal Mesquite Use Area and Buffer Area**

For a geological description of the Tribal Mesquite Use Area and Buffer Area, see the above section, "Land Transfer in Trust, Furnace Creek."

#### **Timbisha Shoshone Natural and Cultural Preservation Area**

##### **Hunter Mountain**

The Hunter Mountain area includes valley land and rolling to moderately steep terrain. The floor of the valley is filled with alluvium composed of various rock types. Much of the currently observable rolling terrain resulted from partial erosion of preexisting alluvial fans, plains, or terraces. Surface cover is sandy to bouldery.

##### **Wildrose**

The Wildrose area includes valley land and rolling to moderately steep terrain. The floor of the valley is filled with alluvium composed of various rock types. Much of the currently observable rolling terrain resulted from partial erosion of preexisting alluvial fans, plains, or terraces. Surface cover is sandy to bouldery.



## **Other Special Use Areas**

### Mesquite Springs and Daylight Pass

Located on opposite sides of the Death Valley National Park, the Mesquite Springs and Daylight Pass areas include valley land and rolling to moderately steep terrain. Much of the currently observable rolling terrain resulted from partial erosion of preexisting alluvial fans, plains, or terraces. Surface cover is sandy to bouldery.

### Bureau of Land Management

#### **Land Transfer in Trust**

##### Death Valley Junction

Death Valley Junction lies at the eastern edge of an alluvial fan that slopes gently to the east. The entire area is an alluvial plain that includes playa deposits, alluvial flood deposits, and fine-grained outwash deposits originating from a variety of rock types. Other than the shallow eastward slope, the area is essentially flat with only minor relief along drainages. Development of desert pavement is frequently extensive. Some fine-grained deposits locally demonstrate mud crack features suggesting a clay component.

##### Centennial

The Centennial parcel is a flat alluvial plain valley bordered by rolling to moderately steep hillsides composed of eroded alluvium and colluvium over shallow granitic and basaltic bedrock. Both rock types crop out extensively over the upland areas and cap ridges, and dominate the alluvial composition. Surface cover is generally sandy to bouldery, with concentrations of sand and silty sand in drainages.

##### Scotty's Junction

The Scotty's Junction parcel is an alluvial plain that includes playa deposits, alluvial flood deposits, and fine-grained outwash deposits originating from a wide variety of rock types. The topography is essentially flat, with only minor relief along drainages. Development of desert pavement is frequently extensive. Fine-grained deposits locally demonstrate mud crack features suggesting a clay component.

##### Lida Community Parcel

The Lida Community Parcel includes valley land and rolling to moderately steep terrain. The floor of the valley is filled with alluvium composed of various rock types. Much of the currently observable rolling terrain resulted from partial erosion of preexisting alluvial fans, plains, or terraces. Surface cover is sandy to bouldery.

## **Proposed Authorization of Private Land Aquisition**

### Lida Ranch

For a geological description of the Lida Ranch private parcel, see above section, "Land Transfers in Trust, Lida Community Parcel."



**Table 1.**  
**Earthquake Seismicity Parameters**  
**Timbisha Shoshone Homeland**  
**Draft LEIS**

FAULT NAME	DISTANCE/ DIRECTION FROM SITE (miles)	MAXIMUM EARTHQUAKE (M)		PEAK HORIZONTAL <sup>(3)</sup> ACCELERATION (G)		HIGH REPEATABLE <sup>(4)</sup> ACCELERATION (G)	
		MCE <sup>(1)</sup>	MPE <sup>(2)</sup>	MCE	MPE	MCE	MPE
Furnace Creek	45, NE	8.0	7.5	0.07	0.05	0.05	0.03
Death Valley West	18, NE	7.2	6.75	0.14	0.11	0.09	0.07
Death Valley Central/South	22, E	7.75	7.0	0.16	0.10	0.11	0.07
Owl Lake	28, SE	6.6	6.0	0.07	0.05	0.05	0.03
Gorlock, Mule Spring, Leach L	25, S	7.75	7.5	0.14	0.12	0.09	0.08
Blackwater	36, SW	7.0	6.0	0.04	0.03	0.03	0.02
Harper, Gravel Hill	48, SW	7.0	6.5	0.04	0.03	0.03	0.02
Lockhart	56, SW	7.3	7.0	0.04	0.03	0.03	0.02
Little Lake, Airport	32, W	7.0	6.5	0.07	0.05	0.05	0.03
Sierra Nevada	40, W	7.75	7.0	0.07	0.05	0.05	0.03
Ash Lake	4, W	6.8	6.5	0.40	0.31	0.27	0.20
Saline/Panamint Valley North	23, NW	7.25	6.75	0.12	0.09	0.08	0.06
Panamint Valley South	0	7.1	6.7 <sup>(5)</sup>	0.59	0.51	0.40	0.34

<sup>(1)</sup> The MCE is the largest possible earthquake based on the the known tectonic framework of a a particular fault.

MCE magnitudes after Maulchin and Jones (1992) and Weznousky (1986). Larger magnitude of the two sources is shown.

<sup>(2)</sup> The MPE is the largest earthquake with a return period of 100 years.

<sup>(3)</sup> Peak accelerations calculated from deterministic empirical data after Jorner and Fumal (1986). g=Acceleration of gravity.

<sup>(4)</sup> The highest horizontal accelerations that are generally sustained for a period of time during an earthquake.

High repeatable accelerations are typically about 65 percent of the peak horizontal acceleration.

Source : Bureau of Land Management, 1995a.



## **Tribal Cooperative Activity/Special Use Areas**

### Eagle Mountain and Warm Sulphur Springs

The Eagle Mountain and Warm Sulphur Springs areas include valley land and rolling to moderately steep terrain. Much of the currently observable rolling terrain resulted from partial erosion of preexisting alluvial fans, plains, or terraces. Surface cover is sandy to bouldery.

### Lida Tribal Use Area

For a geological description of the Lida Tribal Use Area, see above section, "Land Transfers in Trust, Lida Community Parcel." **References**

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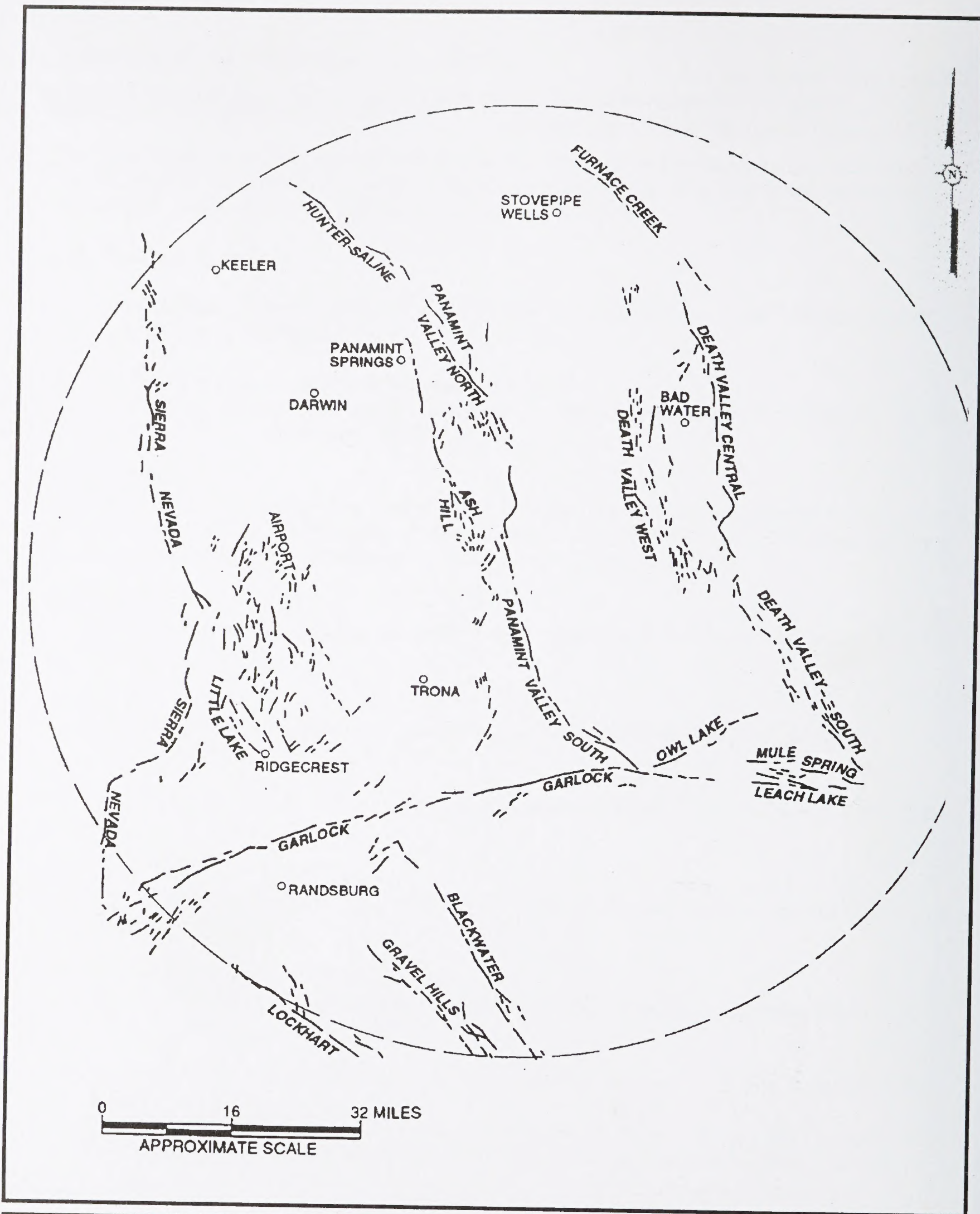
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### Regional Seismicity Map

Source: Bureau of Land Management, 1995a  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Figure

**1**



## **APPENDIX L**

### **NOISE**

**[Appendix L has not been updated since the draft LEIS released in May 2000, and therefore may not reflect revisions made in Volume I as a result of new information.]**







## **APPENDIX L: NOISE**

This section provides a description of existing noise conditions affecting lands proposed for transfers, acquisition and transfer, and cooperative activities/special uses. This section was prepared by gathering current noise data from the California Department of Transportation (Caltrans), the National Park Service (NPS), and the Nevada Department of Transportation (NDOT).

### **Noise Characteristics**

Noise is usually defined as unwanted sound. It consists of any sound that may produce physiological or psychological damage or interfere with communication, work, rest, recreation, and sleep. It is now recognized that noise has become an environmental pollutant. To the human ear, sound has two significant characteristics: pitch and loudness. At undesirable levels, pitch is generally an annoyance, while loudness can affect the ability to hear.

Pitch is a function of the number of complete vibrations, or individual sound waves, striking the ear per unit of time. As the number of cycles per second increases, the pitch rises; as it drops off, the pitch lowers.

Loudness is a function of the amount of energy in a sound wave. This energy is, in turn, a function of sound pressure. A sound wave consists of a moving front of pressure that exceeds the ambient atmospheric pressure, followed by a trough that is below ambient atmospheric pressure. The more this pressure front varies from the ambient pressure, the louder, or more intense, the sound. (Loudness also depends on other factors, as discussed below.) Whether or not a sound is perceived as too intense depends upon the characteristics of the receptor ear. The human ear has evolved to receive sound within a specific intensity range. Sound below that range is inaudible, while sound above that range becomes painful and damaging. Intensity, like pitch, can be precisely measured.

### **Noise Scales**

Sound intensity is measured in units called decibels (dB). When this basic unit is adjusted to correct for the relative frequency response of the human ear, the resulting unit is the A-weighted decibel (dBA). A-weighting de-emphasizes low frequencies. Zero on the dBA scale is based on the lowest sound level that a healthy, unimpaired human ear can detect. Unlike linear units (inches or pounds), the decibel scale is logarithmic. When measured on this scale, sound intensity increases or decreases exponentially with each decibel of change. While 10 decibels is ten times more intense than 1 decibel, 20 decibels is 100 times more intense and 30 decibels is 1,000 times more intense. Thirty decibels represent 1,000 times as much acoustic energy as 1 decibel. The decibel scale increases as the square of the change in sound pressure energy. A sound as soft as human breathing is about 10 times greater than 0 decibels. The decibel system of measuring sound provides a simplified relationship between the physical intensity of sound and its perceived loudness to the human ear.

Because of the physical characteristics associated with noise transmission and reception, a doubling of noise energy normally results in about a 3 dBA increase in noise levels, while a 10 dBA increase in noise level is generally required to perceive the noise as having doubled in loudness. A 1 to 2 dBA change in ambient noise levels generally is not audible even to sensitive receptors.

The decibel level of a sound decreases exponentially as the distance from the source increases. For a single point source, the sound level decays approximately six decibels for each doubling of distance from the source. If noise originates from a linear or line source, such as a traffic or rail corridor, the sound will decrease three decibels for each doubling of distance, provided the surrounding environment is "hard"



(free from "soft", sound-absorbing objects such as vegetation). Noise from a line source in an environment that is relatively flat and vegetated will decrease 4.5 decibels for each doubling of distance.

The time of day when a sound is emitted is an important factor in determining whether or not it is considered a nuisance. Sounds that are barely noticeable at midday may be disruptive or annoying during the evening and night. There are a number of noise measurement scales that consider the increased sensitivity of the community, the two most commonly used are the Community Noise Equivalent Level ( $C_{nel}$ ) and the day-night sound level ( $L_{dn}$ ). The  $L_{dn}$  scale, developed by the Environmental Protection Agency, is a 24-hour average sound level in which a 10 dBA penalty is added to any sounds occurring between the hours of 10:00 p.m. and 7:00 a.m. The  $C_{nel}$  scale, which is used in California Airport Noise Regulations, is similar except that an additional 5 dBA penalty is added for the evening hours from 7:00 p.m. to 10:00 p.m.

Noise exposure goals for various types of land uses reflect the varying noise sensitivities associated with those uses. Residences, hospitals, schools, guest lodging, libraries, and parks are most sensitive to noise intrusion and therefore have more stringent noise exposure targets than manufacturing or agricultural uses, which are not subject to impacts such as sleep disturbance.

### **Existing Vehicle Noise**

Traffic has the largest influence on ambient noise levels in the area. A relatively high level of traffic is observed along California State Highway 127 between Baker and Death Valley Junction (Caltrans 1996). However, vehicle noise is generally not an issue in the Park in spite of the many roads including California State Routes 127, 190, and 178, and other major paved roads. Because of Death Valley National Park's very large size and sparse population density, most receptors such as residences are well away from traffic and its noise. In general, the ambient noise levels are relatively low (quiet) at all sites and throughout the Park.

Other areas in the region where localized noise occurs are at the Dumont Dunes off-highway vehicle open area and at mining operations. As discussed below, noise from military overflights primarily in the Panamint and Saline Valleys is less localized.

### **Aircraft Overflights**

The Park is in the vicinity of several U.S. Department of Defense facilities: Fort Irwin Military Reservation; China Lake, Naval Air Weapons Station; and Nellis Air Force Base. Military aircraft from these facilities often use airspace in the Park. Although aircraft noise does not appear to affect wildlife, visitors to the area often react adversely to jet noise and sonic booms. In addition, some booms have caused damage to natural and cultural resources (NPS 1988).

Military overflights constitute the primary source of high-level noise incidents in the Park. Parts of the Park are within a joint service restricted airspace complex designated as a military operations area (R2508) that permits aircraft to fly at speeds exceeding 250 knots and at altitudes 200 feet above ground level or higher (DOD 1995). The military operations area is used on a daily basis by Navy and Air Force aircraft. Low-level overflights of various military aircraft are common in the vicinity of the Park.

In 1976, Death Valley National Park and Edwards Air Force Base signed an agreement stating that pilots would be instructed to fly at least 3,000 feet above ground level while within the Park boundary. Jet pilots from the Navy, Marines, Air Force, and the National Guard, fly over 60,000 flights per year from Edwards. Occasionally pilots have erred and have flown in Death Valley below the 3,000 foot restriction. Upon receiving complaints from the public, the National Park Service will typically notify Edwards on the reported violation.



Title VIII of the California Desert Protection Act of 1994, provides that:

Nothing in this Act, the Wilderness Act, or other land management laws generally applicable to the new units of the National Park or Wilderness Preservation Systems (or any additions to existing units) designated by this Act, shall restrict or preclude low-level overflights of military aircraft over such units, including military overflights that can be seen or heard within such units.



## References

National Park Service, U.S. Department of the Interior

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## **APPENDIX M**

### **TRANSPORTATION**

**[Appendix M has not been updated since the draft LEIS released in May 2000, and therefore may not reflect revisions made in Volume I as a result of new information.]**







## APPENDIX M: TRANSPORTATION

This section provides a description of the existing transportation and traffic conditions on highways in the vicinity of the lands proposed for transfer, acquisition and transfer, and cooperative activities/special uses. This section was prepared by gathering current traffic data from the California Department of Transportation (Caltrans), the National Park Service (NPS), and the Nevada Department of Transportation (NDOT).

Figure 1 indicates locations of land considered in this LEIS in eastern California and western Nevada. Highway and road jurisdiction for each of the sites are as follows: (1) Caltrans and NPS have co-jurisdiction concerning roadways that run through Furnace Creek, Saline Valley and Indian Rancheria, Furnace Creek Buffer Area, Hunter Mountain, Wildrose, Mesquite Springs, and Daylight Pass; (2) Caltrans has exclusive jurisdiction over Centennial, Death Valley Junction, and Eagle Mountain; and (3) NDOT has jurisdiction over roadways occurring at Lida Ranch, Lida Community Parcel, Scotty's Junction, and Ash Meadows National Wildlife Refuge.

The region has a network of roads, ranging from high-speed highways to unmaintained four-wheel drive jeep trails. NPS staff maintains nearly 700 miles of road, 243 miles of which are classified as standard vehicle roads (such as Scotty's Castle Road), that are paved or unpaved and require no more ground clearance than a standard sedan. High clearance or four-wheel drive roads constitute 442 miles, about 10 miles of which are service spur roads. The area encompasses hundreds of miles of unmaintained four-wheel drive routes. When the Death Valley National Park came in to being in 1994, it did not undertake responsibility for any additional paved roads. Most of the new NPS roads are unpaved four-wheel drive roads that provide access to remote locations of the Park. In addition, the project area contains many miles of roads maintained by Inyo County or by private mining companies.

The principal entrance routes to lands considered in this LEIS are the same routes used to access Death Valley National Park, which are mainly by way of Townes Pass from the west and Furnace Creek from the east, both on California State Route 190. Caltrans District 9 maintains U.S. Highway 95, which is the main highway through the project area. Caltrans is also responsible for California State Routes, 127 and 178, which run through the area.

Table 1 identifies Average Daily Traffic (ADT) figures recorded by Caltrans District 9 in 1998 for the portions of California state routes located in the project area.

The project area is also accessible from several highways in District 1 of the NDOT. These particular facilities consist of Nevada State Routes 266, 267, 373, and 374, generally connecting with U.S. Highway 95 and located at the northeast margin of the project area. The U.S. Highway 95 corridor is a federal highway, extending south to the Mexican border and north to the Canadian border. The traffic conditions on Nevada state highways within the project area itself are summarized in Table 2.

Site-specific traffic analysis was not conducted for cooperative activity/special use areas. These areas are generally off highways and cooperative activities would not contribute to a change in either traffic volumes or patterns.

In general, traffic in and around lands considered in this LEIS is light and unimpeded. Occasional heavy traffic is known to occur in the vicinity of Furnace Creek in Death Valley National Park. Peak traffic periods occur during winter months in general and during annual events, such as Death Valley Days in November.



## References

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1995. *Briggs Project, Inyo County. Final Environmental Impact Statement/Environmental Impact Report*. Ridgecrest, CA: 2 Volumes.

National Park Service, U.S. Department of the Interior

1998. *Draft Environmental Impact Statement and General Management Plan*, Death Valley National Park, California and Nevada.



**Table 1.**  
**California Average Daily Traffic Levels (1998)**  
**Timbisha Shoshone Homeland**  
**Draft LEIS**

<b>Highway/Location</b>	<b>ADT</b>
Route 190 Junction @ Route 136 West	280/840
Route 190 @ Scotty's Castle Road	1,250
Route 190 @ Furnace Creek Road	1,900
Route 190 @ Death Valley Junction, Route 127	1,250/1,000
Route 127 @ Nevada State Line	980
Route 127 @ Death Valley Junction, Route 190 West	400/850
Route 127 North Junction @ Route 178 West, Shoshone North	610

*Source:* California Department of Transportation (CalTrans), District 9, 1999.

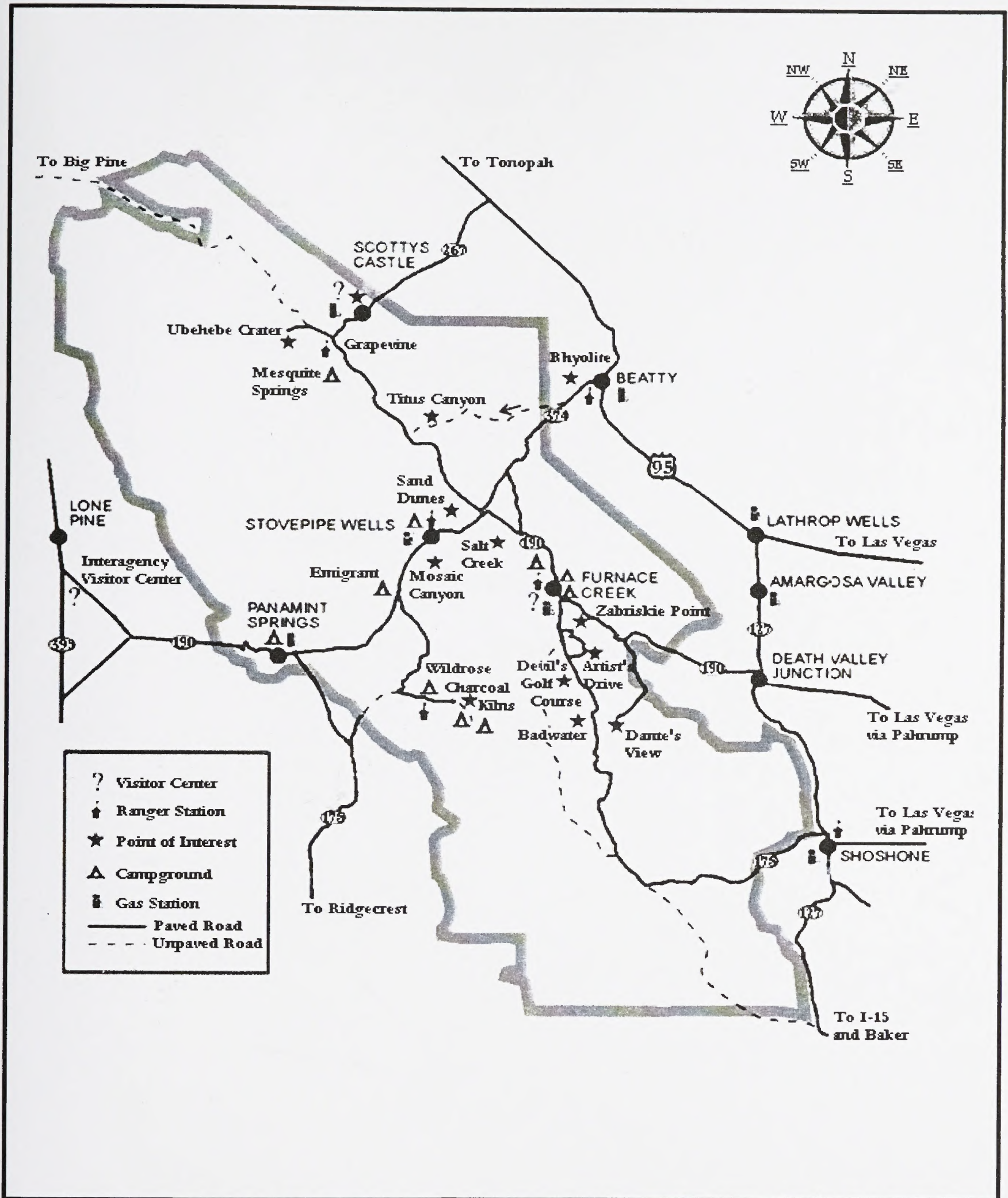


**Table 2.**  
**Nevada Average Daily Traffic Levels (1998)**  
**Timbisha Shoshone Homeland**  
**Draft LEIS**

<b>Highway/Location</b>	<b>ADT</b>
Route 374 @ State Line	360
Route 373 @ 0.5 Miles South of Lathrop Wells	710
Route 267 @ 0.3 Mile West of U.S. 95	60
Route 266 @ State Line	160
Route 266 @ U.S. 95	170

*Source:* Nevada Department of Transportation, District 1, 1999.





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### Traffic Circulation Map

Source: National Park Service, 2000b

Draft Legislative Environmental Impact Statement

Timbisha Shoshone Homeland

Figure

**1**







## **APPENDIX N**

### **VISUAL RESOURCES**

**[Appendix N has not been updated since the draft LEIS released in May 2000, and therefore may not reflect revisions made in Volume I as a result of new information.]**







## **APPENDIX N: VISUAL RESOURCES**

This section reviews the visual character and quality of lands proposed for transfer, and acquisition and transfer. The visual character of the cooperative activity/special use areas surrounding the Furnace Creek parcel was not evaluated because the scenic character is not anticipated to change with implementation of cooperative activities. Land surface, water, vegetation, and other natural or manmade features are visual resource properties that make up the scenic quality of the landscape. Photographs of existing views and the locations of photograph viewpoints are provided in Figures 1 through 10.

### **Regional Setting**

#### **Visual Management**

Visual management areas and their managers for each of the lands considered in this LEIS are as follows: (1) the vicinity of the existing tribal village at Furnace Creek in Death Valley National Park, managed by the NPS; (2) Indian Rancheria in Death Valley National Park, privately owned, and the surrounding area within Saline Valley, managed by NPS; (3) Death Valley Junction, California, east of the Park, managed by the BLM; (4) Centennial, California, west of the Park, managed by the BLM; (5) Scotty's Junction, Nevada, northeast of the Park, managed by the BLM; (6) Lida Community Parcel, Nevada, north of the Park, is managed by the BLM; and (7) Lida Ranch, Nevada, north of the Park, privately owned.

Visual management plans and policies relevant to the Proposed Action are as follows: (1) National Park Service (NPS) Plans and Policies, (2) Bureau of Land Management (BLM) Plans and Policies, and (3) California Desert Conservation Area (CDCA). These policies are discussed below.

#### **National Park Service Plans and Policies**

Established in 1916, NPS manages parks and various historic preservation, conservation, and recreation programs. The natural and cultural resource management objectives of NPS are to maintain, preserve, interpret, and perpetuate the aesthetic setting, and the natural and cultural resources, of Death Valley National Park in such a manner as to:

- Prevent, eliminate, or reduce artificial lighting and noise in order to preserve the opportunity for visitors to experience the night sky and stillness of the desert.
- Maintain, preserve, and perpetuate an aesthetic setting for commercial services and community support services.

#### **Bureau of Land Management Plans and Policies**

BLM guidelines for management of visual resources are issued under the authority of the Federal Land Policy and Management Act (FLPMA), and regulations of the President's Council on Environmental Quality (CEQ) implementing the National Environmental Policy Act (NEPA). BLM's guidelines for implementing NEPA and FLPMA's aesthetic goals are addressed in the BLM Visual Resource Management (VRM) Program section within the BLM Resource Management Plan (RMP).

BLM's Visual Resource Management (VRM) Program is a systematic procedure used to identify visual values, establish objectives that provide standards for managing those values, and evaluate the visual impacts of proposed projects to ensure that BLM objectives are met.



Each BLM District in Nevada has its own VRM program. The Tonopah BLM VRM system was developed to identify, evaluate, and classify the visual resources of public lands, and assigns a management class rating from I through IV by inventorying and evaluating both the scenic quality and sensitivity of a landscape (Table 1).

Based on the Tonopah BLM VRM classes presented in Table 1, Lida Ranch and a portion of the Lida Community Parcel (along the State Route 266 corridor) are designated Class III. Scotty's Junction and a portion of the Lida Community Parcel (outside the State Route 266 corridor) are designated Class IV. Wilderness Study Areas (WSA) are Class I because WSA's are managed to protect wilderness values.

### **California Desert Conservation Area**

In FLPMA Section 601, the California Desert Conservation Area Plan was established to give guidance for BLM management of public lands in California desert areas.

The recreation element in CDCA Plan provides a visual resources management program that emphasizes conserving desert resources that have special scenic values. This VRM program uses the following policies to effectively manage activities that involve alteration of the natural character of the landscape:

- The appropriate levels of management, protection, and rehabilitation on all public lands in the CDCA will be identified, commensurate with visual resource management objectives in the multiple-use guidelines.
- Proposed activities will be evaluated to determine the extent of change created in any given landscape and to specify appropriate design or mitigation measures using BLM's contrast rating process.

The Death Valley Junction and Centennial parcels are designated as CDCA Multiple-Use Class L (Limited Use), which protects sensitive, natural, scenic, ecological, and cultural resource values. Public lands designated as Class L are managed to provide for generally lower-intensity, carefully controlled multiple use of resources, while ensuring that sensitive values are not significantly diminished.

### **Regional Characteristics**

The existing landscape characteristics of the proposed Timbisha Shoshone homeland region consist of mountain ranges, foothills, valleys, plains, alluvial fans, plateaus, badlands, pediments, river washes, playas, sand dunes, springs, hot springs, creeks, and waterfalls. It includes the Nelson Range, the Saline Valley, and the Panamint Mountains including Wildrose Canyon. Elevations range from below sea level to above 11,000 feet above sea level. More than 95 percent of this area is designated Wilderness.

The following will provide existing regional descriptions that constitute each site's surrounding visual characteristics.



## **National Park Service**

### **Land Transfer in Trust**

#### **Furnace Creek**

Furnace Creek is located on the floor of central Death Valley and encompasses the Timbisha Shoshone village, the privately owned inholding containing Furnace Creek Ranch and Furnace Creek Inn, the Park Visitor Center, and the Furnace Creek, Texas Springs, and Sunset Creek campgrounds, as well as a small airport. The area is bordered on the west by alluvial fan and valley bottomland including about 3,000 acres of mesquite groves and a short segment of Salt Creek.

### **Proposed Authorization of Private Land Acquisition**

#### **Indian Rancheria**

The Proposed Action calls for the purchase of two privately owned parcels of 80 and 40 acres, west of the warm springs and at the edge of the Park, to be taken into trust for the Tribe. Known as Indian Rancheria, the area is located in southern Saline Valley, 20 miles northwest of Ubehebe Peak, and is entirely within the Death Valley National Park boundaries.

## **Bureau of Land Management**

### **Land Transfer in Trust**

#### **Death Valley Junction**

Death Valley Junction is located in Inyo County, California, at about 2,000 feet in elevation in open saltbush scrub habitat. The parcel lies on the edge of an alluvial fan sloping gently to the east. The southeastern side of the parcel is bordered by the community of Death Valley Junction and is bisected by California State Route 190, east of the junction of California State Routes 127 and 190.

#### **Centennial**

Centennial is located in Inyo County, California, west of Death Valley National Park at 4,000 to 5,000 feet in elevation. The parcel is part of Lower Centennial Flat, which is ringed on three sides by desert mountains. The parcel contains creosote bush and Joshua tree woodland. State Route 190 runs to the northwest and China Lake Naval Air Weapons Station lies to the south.

#### **Scotty's Junction**

Scotty's Junction is located east of Death Valley National Park in Nye County, Nevada, at the junction of U.S. Highway 95 and Nevada State Route 267, which is an access road into Death Valley. The site begins west of U.S. Highway 95. It is in the upper portion of the Sarcobatus Flat valley bottom, and the terrain is relatively flat with low-lying hot desert shrubs.

#### **Lida Community Parcel**

Lida Community Parcel is located north of Death Valley National Park in Esmeralda County, Nevada, and lies on the eastern slope of the Palmetto Mountains. The terrain varies from gradual to steep with



rugged slopes. The site is at the interface of the hot desert shrub and pinon-juniper vegetation communities with about an equal mixture of each. The parcel is adjacent to the historic town of Lida.

### **Proposed Authorization of Private Land Aquisition**

#### Lida Ranch

The Lida Ranch is located north of Death Valley National Park in Esmeralda County, Nevada. The private parcel lies on the eastern slope of the Palmetto Mountains.

### **Local Visual Character**

The Proposed Action would establish a permanent tribal land base and related cooperative activities within the Timbisha Shoshone ancestral homeland. The following provides a description of local visual characteristics for each of the lands proposed for transfer, acquisition and transfer, and cooperative activities/special uses.

#### National Park Service

### **Land Transfer in Trust**

#### Furnace Creek

### **Site Visibility**

Figure 1 illustrates the location of three visual observation points selected to represent views of the Community Development Parcel, Tribal Mesquite Use Area, and Buffer Area. Viewpoint No. 1 is located at Texas Springs campground looking north toward the Furnace Creek Community Development Parcel. This view includes State Route 190, mesquite groves, the Timbisha Shoshone village, the Furnace Creek Ranch resort, and other commercial developments at Furnace Creek. The view incorporates the Panamint Mountains in the far distance. Furnace Creek Inn, an airport, and Furnace Creek, Sunset Creek, and Texas Springs campgrounds located to the north have limited views into the area. Trails in the Furnace Creek area that have limited views into the parcel include Golden Canyon Interpretive, Gower Gulch Loop, Desolation Canyon, and Indian Pass. Backcountry roads in the Furnace Creek area that have limited views of the parcel are Echo Canyon and Hole-in-the-Wall.

Viewpoint No. 2 is located at the corner of Badwater road and State Route 190. The view from this location includes the proposed Buffer Area and the eastern portion of the parcel and the Community Development Parcel. Mesquite groves, Middle Basin, and the Black Mountains are visible in the distant background. Mesquite groves occupy the viewable area of the western portion of the parcel. These groves are also visible from selected locations at Furnace Creek Ranch.

### **Scenic Quality**

Viewpoint No. 3 in Figure 1 represents views from the Furnace Creek Community Development Parcel area with the Funeral Mountains in the distance to the northeast. Views to the north are of Furnace Creek Ranch, an airport, and Texas Springs, Sunset Creek, and Furnace Creek campgrounds. The floor of Death Valley dominates the views to the south and west, with the Panamint Range dominant in the near distant views.



## **Bureau of Land Management**

### **Land Transfers in Trust**

#### **Death Valley Junction**

##### **Site Visibility**

The parcel is continuously visible from adjacent areas of State Routes 127 and 190. State Route 127 parallels the eastern border of the parcel. State Route 190 comes from the east and runs west across the parcel. The town of Death Valley Junction borders the southern half of the eastern edge of the parcel. There are no public trails, campgrounds, backcountry roads, or scenic lookouts in the Death Valley Junction area that afford views onto the parcel.

##### **Scenic Quality**

Figure 3 illustrates the location of visual observation points selected to represent views onto and from the parcel. Viewpoint No. 1 is located on a cemetery on the southeastern corner of the site and represents a northern view of the parcel. From this location the Amargosa Desert, the Funeral Mountains, and State Route 190 are viewed in the far distance.

Viewpoints No. 2 and 3 are located on the northern portion of the parcel and represent views to the west and northwest from the parcel. The Funeral Mountains dominate the distant landscape. Views to the east consist of Death Valley Junction and State Routes 127 and 190. The Funeral Mountains and the Amargosa Desert are visible to the north. Views to the south include State Route 127 and the Eagle Mountains in the far distance.

#### **Centennial**

##### **Site Visibility**

State Route 190 has partial views of the parcel. There are no public trails, campgrounds, backcountry roads, or scenic lookouts in the Centennial area that overlook the site.

##### **Scenic Quality**

Figure 5 illustrates the location of visual observation points selected to represent views from the parcel. Viewpoint No. 1 is located on the eastern portion of the parcel and represents a western panoramic view of the Coso Mountain Range and the Sierra Nevada Mountains.

Viewpoint No. 2 is located on the northeastern portion of the parcel and represents a southern view of the Cosco Range.

Viewpoint No. 3 is located on the western corner of the parcel and represents a northeastern view that consists of the Nelson Range and the Talc City Hills.



## Scotty's Junction

### **Site Visibility**

Figure 7 illustrates the location of two visual observation points selected to represent views of the parcel from U.S. Highway 95 and State Route 267. U.S. Highway 95 parallels the eastern side of the parcel and continues northwest. State Route 267 runs through the northwestern corner. Commercial businesses located southeast of the parcel and an airport landing strip located on the northern edge of the parcel can view the entire parcel area.

### **Scenic Quality**

Viewpoint No. 1 is located on State Route 267 and represents a far distant view of the southeastern portion of the parcel. Views from this location consist of desert habitat and the Sarcobtus Flat.

Viewpoint No. 2 is located on the corner of U.S. Highway 95 and State Route 267. This view represents the south and southwestern portion of the parcel, which contains of desert landscape and the landing strip access road. There are no public trails, campgrounds, backcounty roads, or scenic lookouts in the Scotty's Junction area that can view the property site.

Viewpoint No. 3 is located on the southeastern portion of the parcel and represents a western view of the parcel. The desert landscape and Sarcobtus Flat can be observed from this location. Views to the north, south, and west consist of Sarcobtus Flat and distant mountain ranges. U.S. Highway 95 is viewed to the north, south, and east, and commercial businesses are viewed from the eastern edge of the parcel.

## Lida Community Parcel

### **Site Visibility**

Views of the parcel are observed along Nevada State Route 266, which runs through the southwestern portion of the parcel. The town of Lida views the northern and western portion of the property.

### **Scenic Quality**

Figure 9 illustrates the location of two visual observation points selected to represent views of the parcel. Viewpoint No. 1 is located on State Route 266 and represents a far distant view of the eastern portion of the parcel with the Palmetto Mountains in the background.

Viewpoint No. 2 represents a northern view of the parcel from the west end of Lida town. Desert landscape and the Palmetto Mountains are observed from this point.

Viewpoint No. 3 is located on the northeastern corner of the parcel and represents a southwestern view of the parcel with Magruder Mountain in the far distance. The foothills of the Palmetto Mountains dominate the northern views. There are no public trails, campgrounds, backcounty roads, or scenic lookouts in the Lida Community Parcel area that can view the property site.



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2000e. National Park Service, Death Valley National Park, Map Guide, <http://www.nps.gov/deva/Backhikefrm1.html>.

2000f. National Park Service, Death Valley National Park, Map Guide, <http://www.nps.gov/deva/jeeproadfrm.html>.



2000g. National Park Service, Death Valley National Park, Index:  
<http://www.nps.gov/deva/index.htm>.



**Table 1.**  
**Tonopah Planning Area**  
**Visual Resource Management (VRM) Classes**  
**Timbisha Shoshone Homeland**  
**Draft LEIS**

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**Class I Areas:**

**0 acres**

This class provides primarily for natural ecological changes; however, it does not preclude limited management activity. Any contrast created within the characteristic environment must not attract attention. It is applied to wilderness areas, some natural areas, wild portions of the wild and scenic rivers, and other similar situations where management activities are to be restricted.

**Class II Areas:\***

**469,170 acres**

Changes in any of the basic elements (form, line, color, texture) caused by a management activity should not be evident in the characteristic landscape. A contrast may be seen but should not attract attention. Class II VRM areas total 7.7% of the Tonopah Planning Area.

**Class III Areas:\***

**218,000 acres**

Contrasts to the basic elements (form, line, color, texture) caused by a management activity may be evident and begin to attract attention in the characteristic landscape. However, the changes should remain subordinate to the existing characteristic landscape.

Class III VRM areas total 3.6% of the Tonopah Planning Area.

**Class IV Areas:\***

**5,403,931 acres**

Contrast may attract attention and be a dominant feature of the landscape in terms of scale; however, the change should repeat the basic elements (form, line, color, texture) inherent in the characteristics landscape. Class IV VRM areas total 88.7% of the Tonopah Planning Area.

\*Structures in the foreground distance zone (0-1/2 mile) often create a contrast that exceeds the VRM class, even when designed to harmonize and blend with the characteristic landscape. This may be especially true when a distinctive architectural motif or style is designed. Approval by the Area Manager is required on a case-by-case basis to determine whether the structure(s) meet the acceptable VRM class standards and, if not, whether they add acceptable visual variety to the landscape.

2. Manage scenic quality along five identified highways as Visual Resource Management Class III areas (State Route 374 between Beatty and Death Valley National Monument, State Route 267 between Scotty's Junction and Death Valley National Monument, State Route 266 between Lida Junction and the California border, State Route 265 between Blair Junction and Silver Peak and State Route 264 between U.S. 6 and the California border).

3. Manage the Lunar Crater Area (39,680 acres) and all primitive and semi-primitive non-motorized areas (except for existing roads) as Visual Resource Management Class II areas.

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Source: Bureau of Land Management, 1997a.

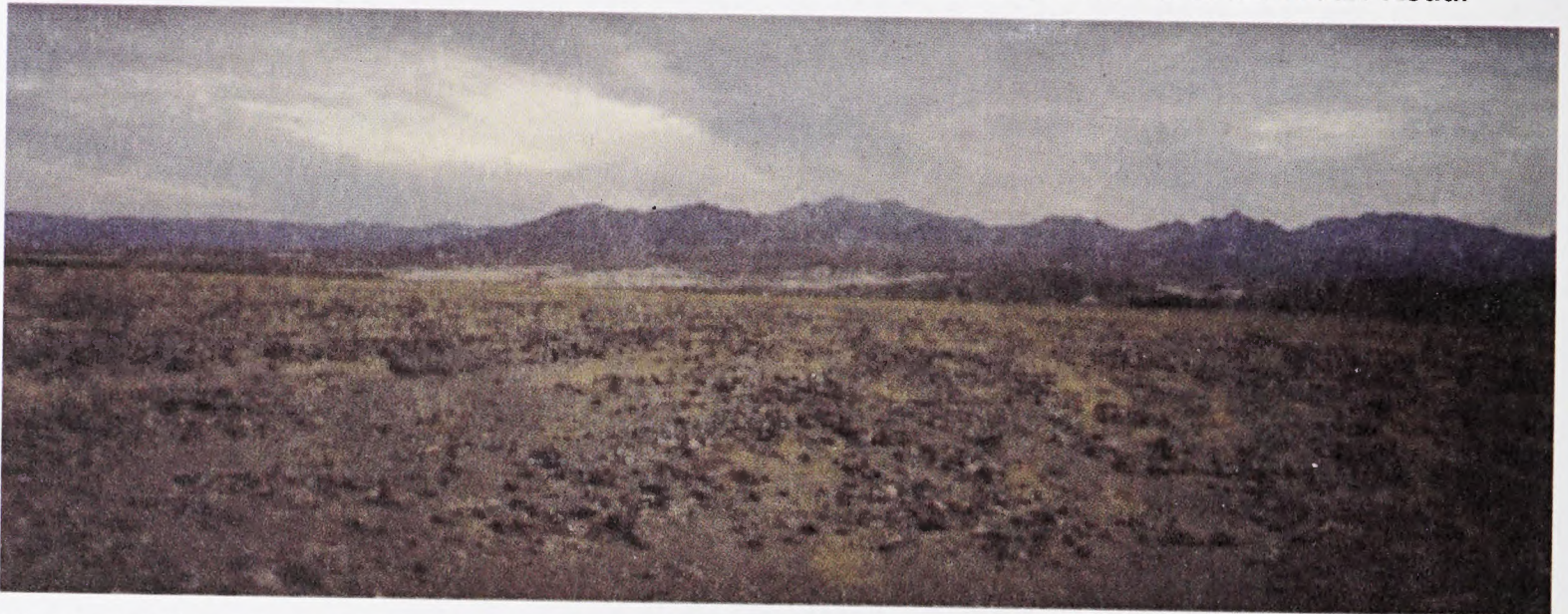




Viewpoint No. 1 of Furnace Creek Community Development Parcel from Texas Springs Campground.



Viewpoint No. 2 of Furnace Creek Buffer Area from California State Route 190 at Badwater Road.



Viewpoint No. 3 from Furnace Creek Community Development Parcel to the northeast.



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Lawson  
Associates**

**Views of Furnace Creek Transfer  
And Cooperative Activity/Special Use Areas**  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Figure  
**1**





**Harding  
Lawson  
Associates**

### Area and Location of Photograph Viewpoints

Reference: USGS 7.5 Minute Topographic Quadrangle Map  
Of Furnace Creek, California, and West of Furnace Creek,  
California, Dated 1988

Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Figure

**2**





**Viewpoint No. 1 of Death Valley Junction parcel from the south.**



**Viewpoint No. 2 from Death Valley Junction parcel from east and north of California State Route 190.**



**Viewpoint No. 3 from Death Valley Junction parcel to the northwest.**

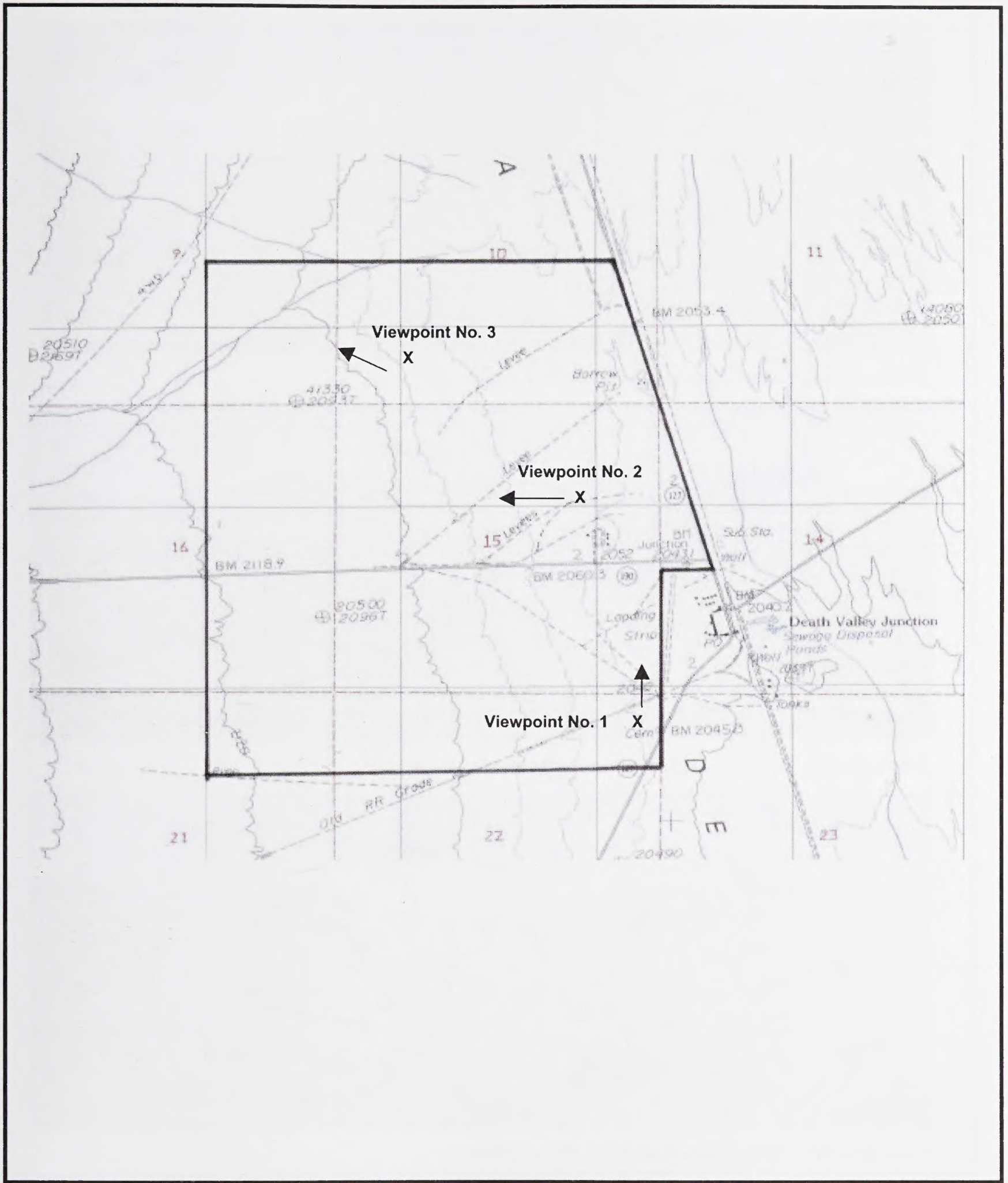


**Harding  
Lawson  
Associates**

**Views of Death Valley Junction Transfer Area**  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

**Figure  
3**





**Harding  
Lawson  
Associates**

### Area and Location of Photograph Viewpoints

Reference: USGS 7.5 Minute Topographic Quadrangle Map  
Of Death Valley Junction, California - Nevada, Dated 1988  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Figure  
**4**





Viewpoint No. 1 from Centennial parcel to the west.



Viewpoint No. 2 from Centennial parcel to the south.



Viewpoint No. 3 of Centennial parcel to the northeast.

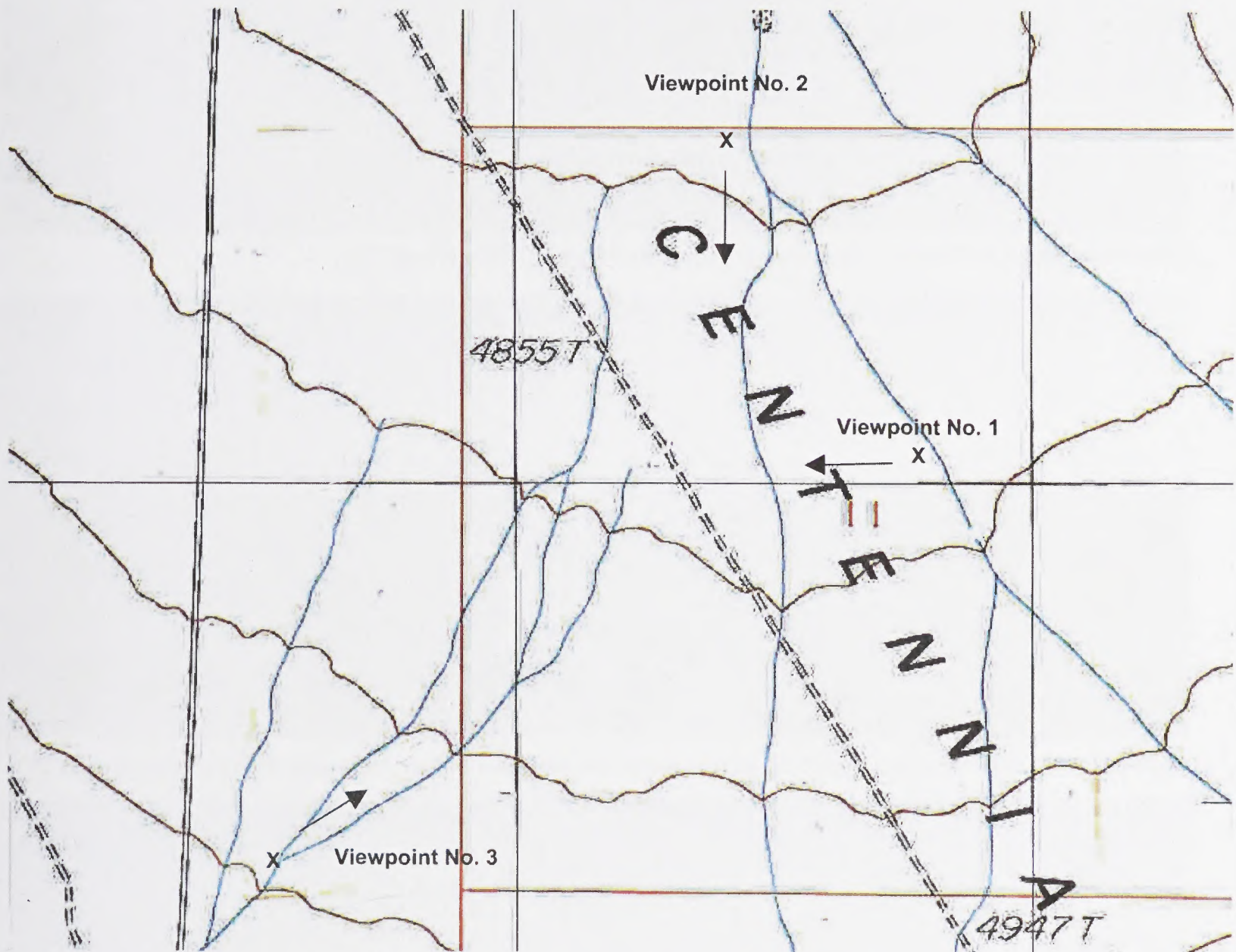


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Associates**

**Views of Centennial Transfer Area**  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

**Figure  
5**





**Harding  
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Associates**

### Area and Location of Photograph Viewpoints

Reference: USGS 7.5 Minute Topographic Quadrangle Map  
Of Talc City Hills, California, Dated Provisional Edition 1987  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Figure

**6**





Viewpoint No. 1 of Scotty's Junction parcel from Nevada State Route 267.



Viewpoint No. 2 of Scotty's Junction parcel from the junction of U.S. Highway 95 and State Route 267.



Viewpoint No. 3 of Scotty's Junction parcel from the east.



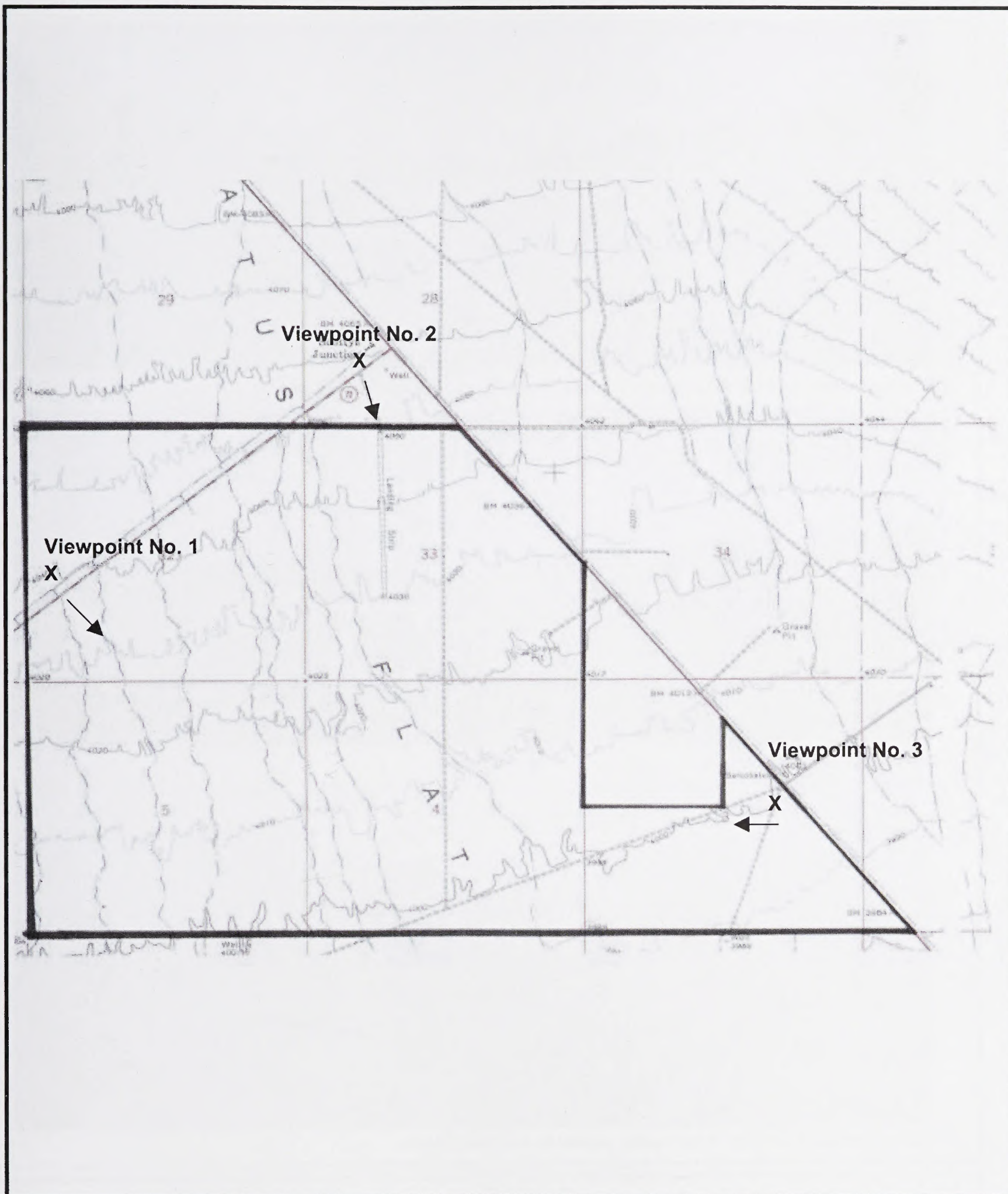
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Associates**

**Views of Scotty's Junction Land Acquisition  
And Transfer Area**

Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

**Figure  
7**





**Harding  
Lawson  
Associates**

**Area and Location of Photograph Viewpoints**  
Reference: USGS 7.5 Minute Topographic Quadrangle Map  
Of Scotty's Junction, Nevada, Dated 1968  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

**Figure  
8**





Viewpoint No. 1 of Lida Community parcel from Nevada State Route 266.



Viewpoint No. 2 of LidaCommunity parcel from the south.



Viewpoint No. 3 of Lida Community parcel to the southwest.

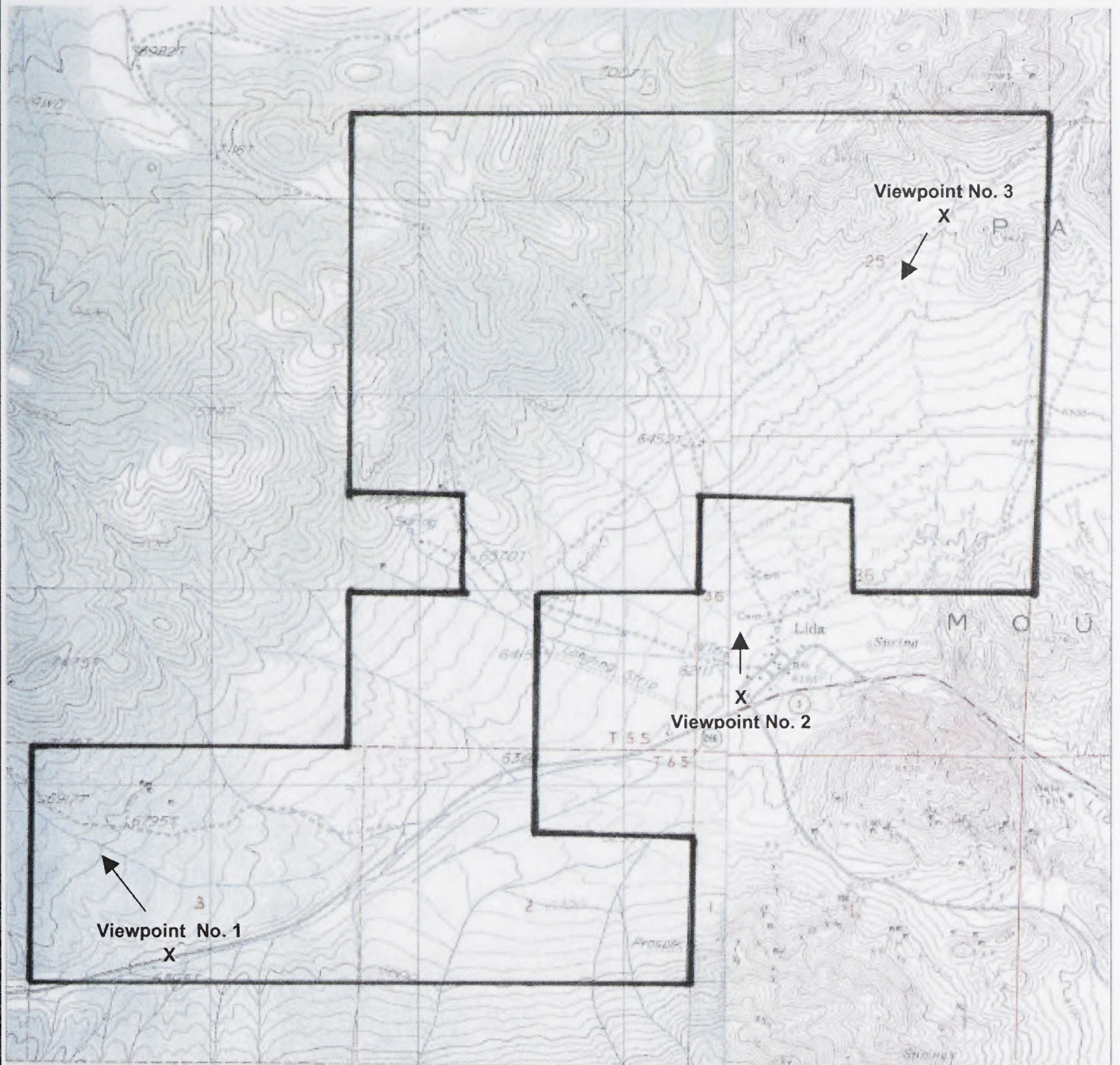


**Harding  
Lawson  
Associates**

**Views of Lida Summit Land Transfer Area**  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

**Figure  
9**





**Harding  
Lawson  
Associates**

### Area and Location of Photograph Viewpoints

Reference: USGS 7.5 Minute Topographic Quadrangle Map  
Of Magurder Mountain, Nevada, Dated 1987

And Lida, Nevada, Dated 1968

Draft Legislative Environmental Impact Statement

Timbisha Shoshone Homeland

Figure

**10**







## **APPENDIX O**

### **AIR QUALITY**

**[Appendix O has not been updated since the draft LEIS released in May 2000, and therefore may not reflect revisions made in Volume I as a result of new information.]**







## **APPENDIX O: AIR QUALITY**

This air quality impact analysis was conducted in accordance with the *Guidelines for Air Quality Impact Assessment: General Development and Transportation Projects* (California Air Resources Board [CARB] 1983, revised in 1989). Location-specific air quality evaluations were not conducted because the proposed action is not expected to generate a substantial change to local air quality conditions.

### **Regional Setting**

#### **Climate and Meteorology**

With the exception of the Lida sites, other parcels proposed for transfer, transfer and acquisition, and cooperative activities/special uses, are generally sunny, dry, and clear throughout the year. The winters are mild with occasional winter storms, but summers are extremely hot and dry. Summer high temperatures commonly run above 120 degrees Fahrenheit. See Table 1 for the average temperature and precipitation data.

#### **Air Quality Management**

State and federal regulations are implemented and enforced to prevent, abate, and control air pollution from all stationary and temporary sources in the Death Valley National Park. The proposed sites fall within two jurisdictions. The California sites are within the Great Basin Unified Air Pollution Control District (GBUAPCD). The Nevada sites are under the jurisdiction of the Nevada Division of Environmental Protection Bureau of Air Quality. The Mojave Desert Air Quality Management District includes the desert portion of San Bernardino County (within the South East Desert Air Basin), the Great Basin Unified Air Pollution Control District includes Inyo and Mono Counties (within the Great Basin Valley Air Basin), and the Nevada Division of Environmental Protection Bureau of Air Quality includes the Nevada portion of the Park Area.

The Congress established the Prevention of Significant Deterioration program as part of the Clean Air Act. To facilitate the implementation of this program, an area classification scheme was established. This classification scheme has Class I receiving the highest degree of protection with only small amounts of certain kinds of additional air pollution (sulfur dioxide and particulate matter) allowed. The other two areas are Class II, which allows moderate increases in certain air pollutants, and Class III, which allows a large amount of new air pollution (Congress has yet to designate any Class III areas).

Death Valley National Park is classified as a Class II clean air area (42 U.S.C. 7401 et seq.). BLM Wilderness Areas are classified as Class II clean air areas (42 U.S.C. 7474 et seq.). Under this classification, a moderate amount of industrial activity may be permitted in the vicinity of the Park as long as the maximum allowable increases over baseline concentrations established for sulfur dioxide and particulate matter are not exceeded. Death Valley National Park and BLM Wilderness Areas are Class II "floor" areas, meaning that they may never be redesignated to Class III. There are no Class I areas in the California Mojave Desert.

#### **Air Quality Standards**

Both EPA and CARB have established ambient air Quality Standards, based on consideration of the health and welfare of the general public. The National Ambient Air Quality standards (NAAQS) and the California Ambient Air Quality Standards (CAAQS) are summarized in Table 2. State standards are more stringent than the federal standards, so when state standards are exceeded, the federal standards are exceeded as well.



## **Federal and State Nonattainment Areas**

The Clean Air Act developed national ambient air quality standards for a finite number of pollutants called "criteria pollutants." The criteria pollutants are sulfur dioxide, carbon monoxide, nitrogen dioxide, lead, ozone, and total suspended particulate matter less than 10 microns in diameter (PM10). State of California standards, which are stricter than federal standards, include additional standards for hydrogen sulfide, particulate sulfates, vinyl chloride (chloroethylene), and visibility reducing particles.

Nonattainment areas are areas that are not in compliance with the National Ambient Air Quality Standards, and must reduce pollution to reach compliance. Nonattainment requirements include reasonable controls on existing stationary sources, and more stringent controls on new sources, emission offsets, transportation control plans (including inspection and maintenance), and sanctions for failing to submit a plan.

Nonattainment areas are designated by the EPA. The designation results in a number of actions. One is the preparation of an Implementation Plan that includes sources of pollution (inventory), a plan of action, and modeling (demonstration) to show attainment by the deadline. The plan control measures are determined by the severity of the nonattainment classification. The only federal nonattainment area in the proposed legislation area is the Owens Valley PM10 Planning Area. It is a nonattainment area that requires Best Available Control Measures (BACM) for sites, Best Available Control Technology (BACT) on stationary sources, and New Source Review on new projects. It also requires permits on all stationary sources. In the case of the Owens Valley area, an EPA-approved State Implementation Plan (SIP) exists. The SIP identifies the Owens Lake bed as the source of 99.9 percent of the PM10 emissions and the target of control measures. Another requirement of the 1990 amendments to the Clean Air Act is the conformity requirement for federal agencies in federal nonattainment areas.

The federal and California Clean Air Acts require identification and classification of each state air basin as attainment, nonattainment, or unclassified based on the NAAQS and CAAQS. An attainment designation for a particular pollutant indicates that available ambient monitoring data have shown that the NAAQS or CAAQS for that pollutant have not been violated (or exceeded). A nonattainment designation for a given pollutant indicates that the standards have been exceeded for that pollutant. See Table 2 for Ambient Air Quality Standards.

An unclassified designation indicates that insufficient ambient monitoring data are available to determine if violations of the NAAQS or CAAQS for the pollutant in question have occurred. For regulatory purposes, an unclassified area is generally treated the same as an attainment area.

The Environmental Protection Agency has classified most of the Mojave Desert Air Basin and Salton Sea Air Basin as nonattainment areas for ozone. The San Bernardino County federal ozone nonattainment area lies considerably south of this study area. The only federal nonattainment area is the Owens Valley PM10 Planning Area, which includes only the Centennial site. Inyo County is unclassified for ozone under state standards. Inyo County is nonattainment for PM10 under state (CA) standards. Mono County levels have exceeded the National Ambient Air Quality Standards and may be designated nonattainment for ozone in the future. The Searles Valley planning area is also nonattainment for state hydrogen sulfide and particulate sulfate standards. (Searles Valley planning area shares its boundaries with three air pollution control districts: the Mojave Desert, Great Basin Unified, and Kern County.) The San Bernardino County portion of Death Valley National Park is in nonattainment for California's state ozone standards.

Federal PM10 nonattainment areas in the region include the San Bernardino County desert area, Owens Valley, Mammoth Lakes, Mono Basin, and the Searles Valley planning area. Mono and the eastern portion of Inyo counties have not recorded PM10 emissions in excess of the national standards. The



**Table 1.**  
**Average Temperature and Precipitation**  
**Timbisha Shoshone Homeland**  
**Draft LEIS**

Month	J	F	M	A	M	J	J	A	S	O	N	D
<hr/>												
Temperature (°F)												
Normal daily max	65	73	80	89	99	108	115	113	105	92	76	64
Normal daily min	39	46	53	61	71	80	86	85	75	61	47	38
Precipitation (In)												
Normal	.03	.48	.34	.12	.08	.05	.13	.14	.19	.11	.19	.18

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*Source:* National Park Service, 1998c.



**Table 2.**  
**Ambient Air Quality Standards**  
**Timbisha Shoshone Homeland**  
**Draft LEIS**

Pollutant	Averaging Time	California Standards		Federal Standards		
		Concentration	Method	Primary	Secondary	Method
Ozone (O <sub>3</sub> )	1 Hour	0.09 ppm (180 µ/m <sup>3</sup> )	Ultraviolet Photometry	0.12 ppm (235 µ/m <sup>3</sup> )	Same as Primary Standard	Ethylene Chemiluminescence
	8 Hour	—		0.08 ppm (157 µ/m <sup>3</sup> )		
Respirable Particulate Matter (PM <sub>10</sub> )	Annual Geometric Mean	30 µ/m <sup>3</sup>	Size Selective Inlet Sampler ARB Method P (8/22/85)		Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	24 Hour	50 µ/m <sup>3</sup>		150 µ/m <sup>3</sup>		
	Annual Arithmetic Mean	—		50 µ/m <sup>3</sup>		
Fine Particulate Matter (PM <sub>2.5</sub> )	24 Hour		No Separate State Standard	65 µ/m <sup>3</sup>	Same as Primary Standard	Inertial Separation and Gravimetric Analysis
	Annual Arithmetic Mean			15 µ/m <sup>3</sup>		
Carbon Monoxide (CO)	8 Hour	9.0 ppm (10 mg/m <sup>3</sup> )	Non-dispersive Infrared Photometry (NDIR)	9 ppm (10 µ/m <sup>3</sup> )	None	Non-dispersive Infrared Photometry (NDIR)
	1 Hour	20 ppm (23 mg/m <sup>3</sup> )		35 ppm (40 µ/m <sup>3</sup> )		
	8 Hour (Lake Tahoe)	6 ppm (7 mg/m <sup>3</sup> )		—		
Nitrogen Dioxide (NO <sub>2</sub> )	Annual Arithmetic Mean	—	Gas Phase Chemiluminescence	0.053 ppm (100 µ/m <sup>3</sup> )	Same as Primary Standard	Gas Phase Chemiluminescence
	1 Hour	0.25 ppm (470 µ/m <sup>3</sup> )		—		
Lead	30 day avg.	1.5 µ/m <sup>3</sup>	AIHL Method 54 (12/74) Atomic Absorption	—	Same as Primary Standard	High Volume Sampler and Atomic Absorption
	Calendar Quarter	—		1.5 µ/m <sup>3</sup>		
	Annual Arithmetic Mean	—		0.03 ppm (80 µ/m <sup>3</sup> )		
Sulfur Dioxide (SO <sub>2</sub> )	24 Hour	0.04 ppm (105 µ/m <sup>3</sup> )	Fluorescence	0.14 ppm (365 µ/m <sup>3</sup> )	0.5 ppm (1300 µ/m <sup>3</sup> )	Pararosaniline
	3 Hour	—		—		
	1 Hour	0.25 ppm (655 µ/m <sup>3</sup> )		—		
Visibility Reducing Particulates	8 Hour (10 am to 6 pm, PST)	In sufficient amount to produce an extinction coefficient of 0.23 per kilometer – visibility of ten miles or more (0.07 – 30 miles of more for Lake Tahoe) due to particles when the relative humidity is less than 70 percent. Method: ARB Method V (8/18/89)		No Federal Standards		

Source: National Park Service, 1998c.



Centennial parcel is within the Owens Valley PM10 federal nonattainment area; all other sites are within federal attainment areas.

### **Existing Air Emission Sources**

Visibility is probably the most important air quality resource within the desert region and is the most easily affected by activities that generate dust (especially fine particulates) and sulfur dioxide. Visibility impacts occur from long-range transport of pollutants from as far away as the San Joaquin Valley and the Los Angeles basin (RESOLVE study 1988, cited in BLM 1995a). The RESOLVE study estimates that two-thirds of the visibility degradation was attributed to sources within the San Joaquin Valley with the balance of pollutants coming from local sources and the Los Angeles basin (BLM 1995a).

One nearby source of pollution is the Searles Valley (Trona) complex that produces soda ash, borax, potash, and other chemicals from Searles Dry Lake. Other nearby sources of emissions include Owens Lake, U.S. Army's National Training Center at Fort Irwin, China Lake Naval Air Weapons Station, and Briggs Mine.

Exposed lakebeds and farmlands lie in the Owens Valley and Mono Basin between mountain ranges. Wind-carried dust from these exposed lands in the valley can affect air quality over the area. Strong winds over the Owens Valley dry lake bed blow large volumes of dust containing a variety of particulates into the air. The dust from the lake bed contains carcinogens such as nickel, cadmium, and arsenic, as well as sodium, chlorine, iron, calcium, potassium, sulfur, aluminum, and magnesium (EPA 1999).

In August 1999, the EPA gave final approval to California's particulate matter (PM-10) State Implementation Plan (SIP) for the Owens Valley to ensure clean and healthful air. The GBUAPCD adopted this historic plan after a decade of planning, research, analysis, and negotiations. The plan, for the first time, applies control measures at the lake bed to reduce PM-10 emissions. The control measures that will be used are shallow flooding and managed vegetation. In 2003, the GBUAPCD will reevaluate the air emissions and make the corrections necessary to attain the NAAQS standard by 2006.

Other local pollution sources in the desert consist primarily of particulate matter from off-road vehicles, windblown soil, mining operations, livestock grazing, and agricultural activities. These sources have left certain areas denuded or sparsely vegetated, allowing wind erosion to occur and air quality to suffer, as well as occasionally causing particulate standards violations at some locations.

Local air emission sources within the Park itself consist primarily of motor vehicle exhaust and particulate matter from vehicle travel on unpaved roads, windblown soil, and open burning (trash and campfires).



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1998. *Draft Environmental Impact Statement and General Management Plan*, Death Valley National Park, California and Nevada.



**APPENDIX P**  
**HISTORICAL TRIBAL USE**







reflect population growth throughout the Great Basin. Contact with the southwest resulted in the widespread appearance of Anasazi traits throughout the Great Basin and California deserts. Stone tool kits included Rose Spring and Cottonwood projectile points, as well as mauls and picks morphologically similar to those found in contemporaneous Anasazi sites. The Anasazi influence rapidly decreased north of the Mojave Desert. Despite distant influences, the technology of the Saratoga Springs period reflects a continuation from the Gypsum period, including the use of ground stone. Milling stones, manos, mortars, and pestles suggest a continued reliance on plant, seed, pigment, and animal resources (Theodoratus et al. 1998, 52).

## **Western Shoshone**

The Shoshone historically occupied and currently live throughout the Great Basin, including Montana, Wyoming, Oregon, Utah, Nevada, and parts of California. The Shoshone are divided into many groups, and include the Western Shoshone. Some research suggests that the Shoshone entered the western portion of the Death Valley region from the central Great Basin between 1,000 and 1,500 years ago (Theodoratus et al. 1998, 4; Warren and Crabtree 1986, 191) because a new array of stone and ceramic objects appeared at that time. Lamb (1958) believes that the Shoshone have inhabited Death Valley for 2,000 years. Moratto (1984) holds that the Shoshone entered the region between 6,000 and 4,000 BP. Moratto (1984), Wallace (1977), and Warren and Crabtree (1986, 192) believe that the Shoshone Period is a continuation of the Saratoga Springs complex. The Timbisha Shoshone believe that they have always been in the region.

Many of these new Shoshone Period artifacts share morphological characteristics with those found in Anasazi sites. Their stone tool kits included triangular knives and desert side-notched projectile points. The Shoshone made various types of brownware, steatite beads, and slate pendants and continued the regional reliance on ground stone and milling features for processing seeds and plants. As indicated by the diverse tool kit, the Shoshone consumed a variety of plants and animals. They lived in semi-subterranean pit houses. The Anasazi sites in the western Great Basin are probably associated very strongly with the turquoise mines of the Mojave and the surrounding area. The presence of the Anasazi and other southwest groups gradually diminished in this region as a result of political and climatic changes.

The work of 19th and early 20th century ethnographers has influenced the direction of archaeological research on the Western Shoshone. Steward (1938), Kroeber (1925), and others have made important contributions to understanding the post-contact lifeways of Native Americans. Thomas (1973) and others have used this work as part of their archaeological research. The synchronic cross-cultural approach of 20th century ethnographers lacked an understanding of pre-contact adaptations. When the Lewis and Clark expedition visited Shoshone villages in 1805 (Ronda 1984), the explorers noted that Spanish traders had provided the Indians with riding horses. The horse gave the Shoshone an increased in mobility that probably had an impact on their culture. By the start of the 19th century, non-native people had contacted the Shoshone and forever altered their lifeways. Steward (1938), Kroeber (1925), and others claimed that the relative simplicity they observed in Shoshone social systems and material culture was the result of the limiting effects of the environment on their sociopolitical development.

Thomas (1983) and others have since recognized that the ability of the Shoshone to adapt to the rugged environment of the Great Basin—while maintaining relative linguistic and cultural uniformity within this massive region—reflects their capacity to successfully survive in a hostile political and environmental context. While the Owens Valley Paiute had highly predictable and dense resources to subsist upon, the resources available to the Kawich Mountain Shoshone were relatively less abundant (Thomas 1983, 36). An important aspect of the Shoshone' successful



## APPENDIX P: HISTORICAL TRIBAL USE

### Prehistoric Period

During the last ice age, large fresh water lakes formed in eastern California and the Great Basin. As in other parts of the Great Basin at this time, native people lived near these ancient lakes where they hunted and fished, often leaving behind their broken or discarded tools. Fluted lanceolate points, among the earliest formal tools identified in North America, have been found in the vicinity of Death Valley's ancient lake. By 1977, over 1,400 prehistoric and historic archaeological sites had been recorded within the then Death Valley National Monument (Fowler et al 1995a, 12).

Warren and Crabtree (1986) organized the prehistory of this area into five overlapping time periods. These divisions generally reflect changes in technology and subsistence. Although there is evidence of human activity preceding 12,000 before present (BP), most archaeologists recognize as the earliest solid evidence the Western Pluvial Lakes Tradition—a widespread, poorly defined, but clearly identifiable human land use closely connected to Pleistocene lakes and the marshes that replaced them. The Lake Mojave Complex or Nevares Spring Culture (10,000 to 7,000 BP) is the best-known expression of the Pluvial Lakes Tradition in the Death Valley region, and represents the earliest recorded human occupation in the area. Sites associated with the Lake Mojave Complex occur primarily along the shorelines of Pleistocene and more recent lakes, and contain distinctive stone projectile points and scrapers. Most artifacts from this time are found on the surface, without archaeological deposits or features.

With the drying of the Pleistocene lakes, the Pinto period (7,000 to 4,000 BP) saw a technological shift that reflected the need to adapt to warmer and drier climatic conditions. Although the extent of this shift remains unclear, the stone tool assemblages of this period show a technology that is more generalized than its Lake Mojave predecessors. This new technology may indicate the toolmakers had access to a broader resource base over a larger geographic area. Projectile points, scrapers, borers, and knives compose the bulk of the formal tools in Pinto assemblages. As the Mojave Desert became increasingly arid, many groups moved into the surrounding mountains. During this time, Lake Manley, which had been a 30-foot-deep lake before the end of the Pleistocene era, dried up and human groups left no visible signs of activity in the area (Theodoratus et al. 1998, 52).

A climatic shift bringing increasingly moister conditions marks the start of the Gypsum period (4,000 to 1,500 BP). Lake Manley once again contained water (Theodoratus et al. 1998, 52). As in previous periods, the stone tool assemblages reflect human responses to environmental change. Projectile points and other formal tool types indicate a change in subsistence activities, such as increased hunting of desert bighorn sheep. As human groups increasingly occupied the Mojave Desert, contact intensified between southern California and Arizona (Warren and Crabtree 1986, 188). The appearance of split-twig figurines that originated in northern Arizona and southern Utah suggests social interaction among ethnic groups in California and the Southwest (Warren and Crabtree 1986, 189). Although the exact nature of this interaction remains unclear, the spread of spiritually significant objects show a relationship much more complex than the sharing of food or technology (Warren and Crabtree 1986, 189).

Beginning 1,500 years ago the climate of the Great Basin became increasingly arid. The archaeological record reflects behavioral responses to these changes. During the Saratoga Springs period (1,500 to 800 BP), ethnic groups responded to the increased aridity by improving their hunting technology and expanding their social networks. Progressively larger village sites may



adaptation to environmental variability was their ability to maintain flexible social relations within Shoshone bands or tribes (Beal et al. 1984, 3). Most political power was held at the level of the household; so when resources were scarce, villages would separate into household units and temporarily move to better locations. When resources were plentiful, additional Shoshone families would temporarily join the village. The emphasis on temporary settlement at the village level facilitated the widespread exchange of information concerning resource location.

The groups that currently inhabit the western Great Basin are members of the Numic branch of the Uto-Aztecan linguistic family (see Figure 1 for a geographical distribution), and include the Timbisha (also called the Panamint or Koso) Shoshone; Southern, Northern, and Owens Valley Paiute; Kawaiisü; and Tübatulabal. Historically, their relatively minor linguistic differences facilitated considerable interaction among these groups at the periphery of each group's territory (Kroeber 1925, 590). Many historical Shoshone villages consisted of families speaking different Numic languages. The similarities of the Numic languages eased communication among geographically distant Shoshone groups. Lands considered in this LEIS once had inhabitants from Northern Paiute and Timbisha Shoshone families, and the similarities between their languages undoubtedly aided their successful adaptation to changing political conditions. Steward (1938) mapped the Great Basin according to linguistic territories (see Figure 2), but Kroeber and other ethnographers often encountered difficulty in defining precise territorial boundaries.

The land transfer parcels of Furnace Creek, Indian Rancheria, and Scotty's Junction are within the central region of the Timbisha Shoshone ancestral homeland as are the Hunter Mountain, Mesquite Springs, and Daylight Pass cooperative activity/special use areas. Areas near the outward limits of the Timbisha Shoshone ancestral homeland may have overlapped with other ethnic groups—especially with the Northern Paiute in the area of the Lida parcels. Steward found both Northern Paiute and Shoshone families at Lida (1938, 69), a living arrangement that was likely adopted when U.S. Army units from Camp Independence forced the Paiute out of the Owens Valley during the 1860s. The Owens Valley Paiute are usually considered to have a stronger linguistic affiliation with Western Mono (Monache) and Tübatulabal Shoshone than with the Northern Paiute, who consider them to be southerners. Both the Kawaiisü and Tübatulabal people were present in the Centennial area (Fowler et al. 1995b, 49). The Kawaiisü lived at Warm Sulphur and Wildrose springs during historical times. The Southern Paiute may have occupied Death Valley Junction, Ash Meadows, and Eagle Mountain, which fell within their territories as mapped by Steward (1938, 59).

These ethnographic accounts identify considerable resource sharing among Shoshone groups. During the fall, the Timbisha Shoshone entered Kawaiisü and Southern Paiute territories to hunt and gather. The concept of balanced reciprocity may hold true here—as linguistically related ethnic groups attempted to improve overall chances of survival by sharing resources that were sometimes scarce and spatially unpredictable.

With the arrival of American settlers and miners in the 1840s, Native American groups around the western Great Basin began sharing resources and territory with each other, indicating once traditionally rigid social and geographic barriers were discarded in favor of group survival. Throughout the Great Basin, survival was not based on geography, but rather on knowledge of plant and animal resource distribution. Seasonal movement appears to have been the key to survival in the Great Basin from the earliest occupations to the present.

Few references are made regarding warfare or conflict among these Native American groups, at least during the past 150 years. While often inhospitable, the Timbisha Shoshone regarded the Death Valley area as an inseparable part of their existence, while American miners viewed the



land primarily as an opportunity to exploit resources for profit. The lure of instant wealth motivated many miners and profiteers to come to the region. As long as these two divergent views of the land's purpose existed, conflict was inevitable.

Population movements and introduced diseases contributed to the historical shifts in tribal boundaries. In this area, native people depended more on the family unit and extended family than they did on tribes. As English- and Spanish-speaking groups colonized the American West, they often pushed native populations into marginal environments. According to Kroeber (1925, 590): "All through California it is the inhabited sites that are significant in the life of the Indians, rather than the territories; and boundaries are of the least consequence of all." As historical native groups likely conceived of territory in terms less rigid than contemporary legal description, boundaries could have rapidly shifted.

Ethnographic and archaeological evidence suggests that the Shoshone have inhabited the southwestern Great Basin for at least 800 years. Kroeber (1925, 580, and 605) indicated that the Tübatulabal tribe probably entered the region before the Shoshone of the Plateau Branch. Archaeological evidence attributable to the Tübatulabal dates to 500 years ago (Smith 1978). The Tübatulabal may have maintained a more rigid sense of territory than other Shoshone groups. It is possible the Timbisha Shoshone engaged in greater interaction with their Paiute and Kawaiisü neighbors and relied less upon more distant groups and as a result of this interaction the territorial boundaries among these groups faded. Periods of amity punctuated by tension may generalize much of the interaction between native groups of the region. The steady incursion of American settlers resulted in increased resource sharing—particularly at winter villages—among tribes, which reduced the presence and importance of territorial boundaries.

Since the 1920s, the Timbisha Shoshone have maintained permanent villages in Death Valley, especially at Furnace Creek. In the 1930s, about 30 tribal members lived in adobes built for them at the Indian Village, and they sold baskets, jewelry, and other handicraft at the trading post (Bret Harte Associates 1939). At this time, most of the men were employed at Scotty's Castle, while some worked at Furnace Creek Ranch or for the NPS. Kroeber (1925) noted the importance of villages and other cultural sites to Native Americans, and at Furnace Creek the Timbisha Shoshone have persevered in a hostile political and environmental climate for nearly 1,000 years.

### **Euro-American Period**

Disease was the first impact of European colonization. European colonists introduced their diseases to the Shoshone centuries before American settlers appeared in the area. The physical distance separating the Timbisha Shoshone from other ethnic groups may have served to lessen the devastation of European diseases in the western Great Basin.

Population movements also contributed to the historical shifting of tribal boundaries. In the Mojave Desert, people depended more on the family unit and extended family than they did on tribes. As English- and Spanish-speaking groups colonized the American West, they often pushed native populations into marginal environments. As native groups likely conceived of territory in terms less rigid than contemporary legal description, boundaries could have rapidly shifted. According to Kroeber (1925:590), Native Americans believed that inhabited sites were significant, while boundaries were less important.



Spanish and American trappers and explorers traversed Shoshone territory for many decades, but substantial transgression of Timbisha Shoshone lands only occurred after the 1848 Gold Rush. The Jayhawkers entered Death Valley in 1849 (Lingenfelter 1986). Over the next century, miners scoured Death Valley for gold, silver, and other minerals to mine. At the same time, surveyors mapped the region for railroad and settlement interests. Given the impact of American settlers and miners arriving in the 1840s, Native American groups around the western Great Basin shared resources and territory with each other, so that perhaps once traditionally rigid social and geographic barriers were discarded in favor of group survival. Throughout the Great Basin survival was not based on geography, but rather on knowledge of resource distribution, such as when plants were fruiting or otherwise ready for harvest. Seasonal movement appears to be the key to survival in the Great Basin from the earliest occupations and continued to be the key during the Euroamerican period.

Few references are made regarding warfare or conflict among the Shoshone, at least during the past 150 years (Steward 1938). Although deadly disputes occurred between tribes, the steady incursion of American settlers resulted in increased resource sharing—particularly at winter villages—among tribes, which reduced the presence and importance of territorial boundaries. In this often-inhospitable landscape, the Timbisha Shoshone regarded the area as an inseparable part of their existence (Fowler et al. 1995b). American miners viewed the land primarily as an opportunity to exploit resources for economic gain. The lure of instant wealth motivated many miners and profiteers into the region. As long as two divergent views of the land's purpose existed, conflict was inevitable.

As military and mining operations expanded throughout the region, conflicts with Native Americans increased. The boom in mining of precious metals peaked during the early 1870s, and with it the prosperity of such local towns as Panamint City, Darwin, Skidoo and Lookout. Small-scale farming and ranching met the rising needs of the miners and their pack animals. Beef, vegetables and hay created fortunes for these ranchers. When most miners deserted these towns a few years later, the majority of ranchers also abandoned the area. While making substantial profits from the local miners, many homesteaders established permanent ranches in Death Valley.

Long-term success for mining in the region became inextricably tied to borax, salt and talc. From the 1880s until the 1920s, the constant mining of these materials developed a stable regional industry. Although precious metals lured most prospectors and profiteers, their financial successes never matched those of the borax mines (Lingenfelter 1986).

During the 1890s and 1900s, biologists and geologists studied the natural and mineral resources of the region. At this same time, technological developments again led to renewed mining of precious metals. Short-lived mining towns witnessed the attempts of prospectors searching through mining waste. With the improvement of transportation facilities, large-scale hard-rock operations extracted deposits of gold, silver, copper, lead, zinc and tungsten (Lingenfelter 1986).

As a result of academic and government concerns for studying rapidly disappearing Native American cultures, ethnographers and journalists began to visit the region to study the Shoshone and Paiute groups. During the late 19<sup>th</sup> and early 20<sup>th</sup> centuries John Powell, Alfred Kroeber, Julian Steward and many of their students traveled throughout eastern California and the Great Basin. They recorded anthropological data about rapidly changing and disappearing Native Americans. Popular works partially based on these studies reached an American public that was becoming increasingly mobile and eager to visit the country's many natural wonders.



During the 1920s and 1930s, several resorts in Death Valley and elsewhere in the Mojave Desert catered to the many tourists arriving by automobile. Timbisha Shoshone helped to construct the vacation retreat known as Scotty's Castle, and they stayed on to work as maids, cooks and gardeners. New roads were built and maintained for Californians eager to tour the region, which soon became a popular "road trip" destination. Timbisha Shoshone found employment at Stovepipe Wells and other hotels (Fowler et al. 1995b:61).

From the 1920s onward, the Timbisha Shoshone have maintained permanent villages in Death Valley, especially at Furnace Creek. In the 1930s, about 30 tribal members lived in adobes built for them at the Indian Village. They sold baskets, jewelry, and other handicraft at the trading post (Bret Harte Associates 1939). At this time, most of the men were employed at Scotty's Castle, while some worked at Furnace Creek Ranch or for the NPS. Kroeber (1925) noted the importance of villages and other cultural sites to Native Americans, and at Furnace Creek the Timbisha Shoshone have persevered in a hostile political and environmental climate for nearly 1,000 years.

In 1933, President Hoover established Death Valley National Monument, originally encompassing 2,500 square miles. The National Monument attained national park status in 1994. From the 1930s onward, sporadic mining of precious metals continued throughout eastern California. The industrial build-up before and during World War II resulted in the wide-scale mining of tungsten, antimony, iron, manganese and lead, as well as a decline in gold mining. From 1933 to 1942, the Civilian Conservation Corps (CCC) built many of the structures throughout the park.



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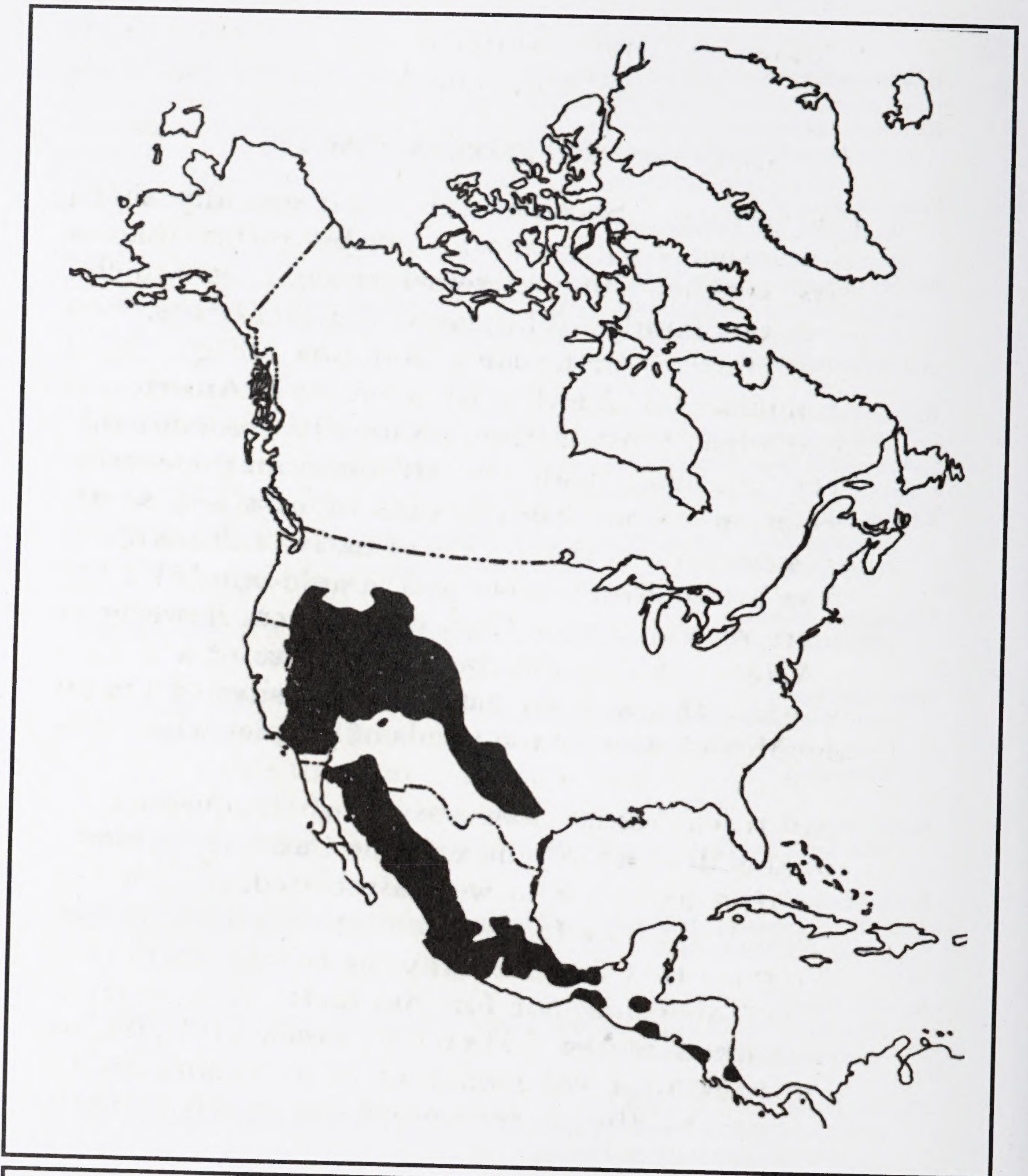
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**Harding  
Lawson  
Associates**

**A Geographical Distribution of the  
Uto-Aztecan Language Family**

Source: Kroeber, 1925

Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Figure

**1**





**Harding  
Lawson  
Associates**

**A Geographical Distribution Of  
Native American Territories  
And Villages Encompassing the Study Area**

Source: Steward, 1938

Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

**Figure  
2**







## **APPENDIX Q**

### **PLANS AND POLICIES**

**[Appendix Q has not been updated since the draft LEIS released in May 2000, and therefore may not reflect revisions made in Volume I as a result of new information.]**







## **APPENDIX Q: PLANS AND POLICIES**

### **Water Resource Plans and Policies**

Water resource plans and policies relevant to the proposed Timbisha sites and sites subject to cooperative activities are primarily governed by the NPS. NPS policies on surface and groundwater, include:

- The National Park Service will seek to perpetuate surface and ground waters as integral components of park aquatic and terrestrial ecosystems.
- Park waters, either surface waters or groundwaters, will be withdrawn for consumptive use only where such withdrawal is absolutely necessary for the use and management of the park and when studies show that it will not significantly alter natural processes and ecosystems.
- All water withdrawn from a park for domestic use will be returned to the park watershed system once it has been treated to a degree that assures there will be no impairment of park resources. Interbasin transfer will be avoided.
- The National Park Service will seek to restore, maintain, or enhance the quality of all surface and ground waters within the parks consistent with the Clean Water Act (33 USC 1251 et seq.) and other applicable federal, state, and local laws and regulations. The quality of water originating within the boundaries of parks will be maintained through the following management actions:
  - The National Park Service will enter into agreements or compacts with other agencies and governing bodies to secure their cooperation in avoiding degradation of water resources.
  - Consistent with the rights of others, the Park Service will maintain a continuous vigilance by observing and monitoring upstream diversions, adjacent uses, and groundwater withdrawals and their effects on the occurrence, quantity, and quality of water necessary for the continued preservation of park biota and ecosystems.
  - The National Park Service will seek state support in helping to protect and enhance the quality of park waters through special use classifications, such as outstanding resource waters.

### **Land Use Management Plans and Policies**

The proposed land transfers and areas subject to cooperative activities/special use are located under NPS, BLM or USFWS jurisdiction. NPS manages: Furnace Creek, the contiguous Mesquite, Buffer, and Restoration Areas, Indian Rancheria, Eagle Mountain, Warm Sulphur Springs, Hunter Mountain, Wildrose, Mesquite Springs and Daylight Pass. BLM Barstow Field Office manages the Death Valley Junction site. BLM Ridgecrest Field Office manages the Centennial site. BLM Tonopah Field Station manages: Scotty's Junction, Lida Summit, Lida Ranch, and the Lida Tribal Use Area. USFWS manages the Ash Meadows National Wildlife Refuge.



Land-use management plans and policies relevant to the proposed action are provided by: (1) the California Desert Protection Act (CDPA), (2) Bureau of Land Management (BLM), and (3) National Park Service (NPS). These policies are to be discussed below.

### **California Desert Protection Act**

The California Desert Protection Act (CDPA) of 1994 established the protection of public lands in the California desert by designating certain lands in the desert as wilderness. CDPA land use management designations are as follows:

- Areas within the CDPA not designated as wilderness or Wilderness Study Areas (WSA) by the CDPA have been adequately studied and would no longer be subject to the requirements of Section 603(c) of the FLPMA pertaining to WSA management.
- Death Valley National Park is afforded full recognition and statutory protection as a national park; and the wilderness within Death Valley would receive maximum statutory protection pursuant to the Wilderness Act.
- Military aircraft testing and training activities at CLNAWS are recognized as important parts of the national defense system and such land would be reserved for use by the Secretary of the Navy.

### **Bureau of Land Management (BLM) Plans and Policies**

The BLM Vision Statement provides specific land use management direction:

- Provide for a wide variety of public land uses without compromising the long-term health and diversity of the land and without sacrificing significant natural, cultural and historical values.

BLM guidelines for management of land use practices for each of the proposed sites are issued under the authority of FLPMA, CDPA and CEQ regulations implementing NEPA. They are addressed in the BLM Resource Management Plan (RMP). The BLM's Land Use RMP is a systematic means to identify land use values, establish objectives which provide the standards for managing those values, and evaluates the land use impacts of proposed projects to ensure that BLM objectives are met. Public lands under BLM management have been designated under a multiple-use classification system. Four multiple-use classifications have been established: C—Controlled (the most restricted), L—Limited, M—Moderate, and I—Intensive (the least restrictive).

### **National Park Service (NPS) Plans and Policies**

The National Park Service (NPS) manages parks and various historic preservation, conservation and recreation programs. Furnace Creek and Indian Rancheria project sites are managed by the NPS.

The Death Valley General Management Plan states that land use practices within the Park shall: "Provide opportunities for compatible public outdoor recreation and promote the public's understanding and appreciation of the California desert by interpreting the natural and cultural resources."



Appurtenant water rights associated with land use management practices include:

- Water for the preservation, management, development, and use of the National Park System will be obtained and used in accordance with legal authority and with due consideration for the needs of other water users.
- The National Park Service will generally obtain water rights by assertion of appropriate rights recognized under state law. Essential water rights will be purchased if unappropriated water is not otherwise available.
- The Service will assert claims to reserved federal water rights for water quantities determined to be the minimum amounts needed to protect the primary purposes of a given park. Where stated, primary purposes are those articulated in the legislation or proclamation establishing the park. Such legislation or proclamation establishes the priority date for the given park. In all cases, the Service will use state courts and state proceedings in accordance with state law to resolve conflicts between it and other claimants.
- All rights to the use of water diverted to or used on federal lands within the national park system by the United States or its concessionaires, lessors, or permittees will be perfected in the name of the United States.
- The National Park Service may enter into contracts providing for the sale or lease of water to persons, states, or their political subdivisions if they provide public accommodations or services for park visitors within the immediate vicinity of a park and if they have no reasonable alternative sources of water, so long as the water transfer does not jeopardize or unduly interfere with the primary natural or cultural resources of the park.

### **Plans and Policies Related to Regional Flora**

Plans and policies related to regional flora of the proposed land transfers and areas subject to cooperative activities are found in the Vegetation Resource Policy, BLM Ridgecrest Field Office, Vegetation Policies, BLM Tonopah Field Station, and NPS—Death Valley General Management Plan. Relevant policies are discussed below.

#### **Vegetation Resource Policy—BLM Ridgecrest Field Office and Tonopah Field Station**

General vegetation resource policies are similar for both the Ridgecrest Field Office and Tonopah Field Station, but vary depending on specific land use plans.

- To conserve federally and state-listed rare, threatened, or endangered plants and to further the purposes of the Endangered Species Act of 1973 (ESA) and similar state laws.
- To carry out management, consistent with the principles of multiple use, for the conservation of Special Status plant species and their habitats and will ensure that actions authorized, funded, or carried out do not contribute to the need to federally list any of the species as threatened or endangered.



- To treat those unusual plant assemblages (UPAs) rated as highly sensitive and very sensitive in a manner that will preserve their habitat and ensure the continued existence of the plant assemblage.
- To manage wetland and riparian areas in the Desert. Specific objectives will be:
  - (a) To avoid the long-term and short-term impacts associated with the destruction, loss, or degradation of wetland and riparian areas.
  - (b) To preserve and enhance the natural beneficial values of wetland and riparian areas which may include constraining or excluding those uses that cause significant long-term ecological damage.
  - (c) To include practical measures to minimize harm in all actions causing adverse impacts on wetland and riparian areas.
  - (d) To retain all wetlands and riparian habitats presently under BLM administration where high resource values exist and adverse impacts cannot be mitigated.
- To maintain the continued existence and biological viability of the vegetation resource in the CDCA while providing for the consumptive needs of wildlife, livestock, wild horses and burros, and uses of the public at large and to manage this resource under the principle of sustained yield.
- To provide guidance for the manipulation of plant habitats or vegetation through changing the plant composition, density, and/or cover for accomplishment of specific resource goals.
- The Bureau encourages the use of private lands in the Desert for the commercial production of valuable desert plants and will cooperate with local governments, which have adopted plans identifying specific areas as suitable for this use.

#### **Vegetation Policies—BLM Tonopah Field Station**

- The areas available for woodland harvest will be subject to the specific restrictions and withdrawals required by Tonopah's Resource Management Plan.
- Permits will not be issued for the harvest of broadleaf trees, dead or green.
- Piñon nut gathering will be authorized on an individual basis, including with Wilderness Study Areas released by Congress for multiple-use purposes. Personal consumption of up to 25 pounds per year is allowed without permit.
- Salvage of vegetative products may be authorized on areas subject to ground-disturbing activities.
- Alteration of sagebrush areas either through application of herbicides, prescribed burning, or by mechanical means will be in accordance with procedures specified in the Western



States' Sage Grouse Guidelines and Memorandum of Understanding between the Nevada Division of Wildlife and the Nevada BLM. All vegetation treatment projects will be coordinated with the Nevada Division of Wildlife at least one year in advance of implementation of the project.

- Application of herbicides on proposed treatment areas to reduce sagebrush and other plant species will be in accordance with procedures established in BLM Manual 9222 to prevent impairment of non-target species.
- Vegetative manipulation that will alter the potential natural plant composition will not be allowed in riparian areas. This includes the introduction of non-native species.

#### **Death Valley General Management Plan—NPS, Death Valley National Park**

- NPS would seek to perpetuate native plant life as part of natural ecosystems.
- Natural landscapes and plants would be manipulated only when necessary to achieve approved management objectives.
- Landscapes and plants might be manipulated to maintain habitat for threatened and endangered species, but in natural areas, only native plants could be used if additional plantings were done.
- NPS would identify and promote the conservation of all federally listed or proposed threatened or endangered species and their critical habitats within park boundaries in ways that were consistent with the purposes of the Endangered Species Act (16 USC 1531 et seq.).
- Death Valley National Park would continue to manage and protect the 40-acre area known as Devil's Hole.

#### **4.5.1.2 Management Plans and Policies**

NPS, BLM, and USFWS have management plans and policies relevant to the protection of wildlife resources in areas affected by the proposed legislation.

#### **The Death Valley National Park Plans and Policies**

Death Valley National Park dedicates itself to protecting significant desert features that provide world class scenic, scientific, and educational opportunities for visitors and academics to explore and study.

- Perpetuate native plants and animal life for their essential roles in the natural ecosystem.
- Ensure the perpetuation of rare and endangered plants and animals and those species endemic (specific) to Death Valley National Park.



## **NPS Plans and Policies**

NPS plans and policies are applicable to the following proposed Timbisha land transfer parcels and areas involving cooperative activities: (1) Furnace Creek, (2) Furnace Creek Buffer Zone, (3) Indian Rancheria, (4) Wildrose, (5) Hunter Mountain, (6) Mesquite Springs, and (7) Daylight Pass.

NPS promotes the conservation of all federally listed or proposed threatened or endangered species and their critical habitats within park boundaries in ways that were consistent with the purposes of the Endangered Species Act (16 USC 1531 et seq.). As necessary, the NPS would control visitor access to and use of critical habitats and might limit access to especially sensitive areas. Active management programs would be conducted as necessary to perpetuate the natural distribution and abundance of threatened or endangered species and the ecosystem on which they depend.

## **Bureau of Land Management Plans and Policies**

BLM's, Tonopah Field Station plans and policies are applicable to the following proposed Timbisha land transfer parcels and sites involving cooperative activities: Lida Ranch (a land acquisition parcel), Lida Community Parcel (a land transfer parcel), and Lida Tribal Use Area (a special use area). The Barstow office's plans and policies are applicable to Eagle Mountain (a special use area) and Death Valley Junction (a land transfer parcel). The Ridgecrest office has jurisdiction over the Centennial site (a land transfer parcel) and Warm Sulphur Springs (a special use area). Relevant BLM wildlife policies include:

- Manage federally and state listed species and their habitats to comply with existing legislation and Bureau policies. Overall objective will be to improve the status of such species so that delisting can occur.
- Give certain species designated sensitive by the BLM, special consideration and attention in the planning process because of their present condition and status.
- Manage representative habitats using a holistic approach. Each habitat will be large enough and managed in such a way as to retain viability and integrity of the natural systems.
- Give habitats unique to the CDCA special management consideration and manage them so as to maintain their unique biological characteristics.
- Manage sensitive habitats using a holistic, systems-type approach.

## **USFWS Plans and Policies**

The USFWS has jurisdiction over resources at Ash Meadows National Wildlife Refuge. The Federal Endangered Species Act (ESA) of 1973, as amended, extends legal protection to plants and animals listed as endangered or threatened by the U.S. Fish and Wildlife Service (FWS). The ESA authorizes FWS to review proposed federal actions to assess potential impacts to "listed" species. Listed species are those which are threatened or endangered (in danger of extinction throughout all or a significant portion of their range) and which have been the subject of final



regulation and listing in the Federal Register, and those species officially proposed for listing in a Federal Register Notice.

Section 7 of the ESA requires federal agencies, in consultation with the FWS, to ensure “that any action authorized, funded, or carried out by such agency...is not likely to jeopardize the continued existence of any listed species or result in the destruction or modification of [critical] habitat.”







**APPENDIX R**

**TOM BELLINGER  
LOWER CENTENNIAL FLAT GROUNDWATER  
EXPLORATION DRILL HOLE**







## LOWER CENTENNIAL FLAT GROUNDWATER EXPLORATION DRILL HOLE

A groundwater exploration hole was drilled in Lower Centennial Flat just east of the lowest elevation on the main dirt road. Ground elevation at the drill hole site is about 4760 feet [topo map] and the approximate location [not surveyed] is 36 degrees 16 minutes north latitude and 117 degrees 43 minutes west longitude.

Drilling began on November 5, 1999, and a 4-inch diameter well was installed and partially developed by November 24. The drill hole was advanced to 1000 feet by direct rotary with bentonite mud. The cuttings indicate alluvial fill [sand, gravel, and clay] to total depth. A 4-inch well was installed with 20-slot screen from 609 to 709 feet. Water and drilling mud was discharged from the well during initial air lift development but a collar on the air lift pipe seperated. The air lift pipe was retrieved from the well on February 3, 2000.

Early water levels in the well dropped as is typical for a well installed in a bentonite drill hole flushed with water to dilute the drilling mud. Early water depths were 250 feet [11-24-99] and 370 feet [12-5-99]. Subsequent depth to water measurements below 380 feet were not possible because the tape was stopped by the air lift pipe. Water level measurements after the air lift pipe was pulled from the well indicate a depth to water from 515 to 520 feet. Depth to water was measured on 2-3-00 [518.1 feet] and on 2-6-00 [516.2 feet]. The apparent water table elevation is about 4245 feet.

The well has not been pumped [scheduled for March] but wells installed in bentonite mud drill holes typically yield sufficient water for at least several houses. Water quality is also unknown and a good sample cannot be collected until the well is pumped to remove the drilling water. Wells completed in alluvial fill, though, usually produce fairly good quality water.

Pumping domestic water quantities from the Lower Centennial Flat groundwater reservoir for many years may induce a measureable groundwater level decline up to one mile away. Pumping will not impact other communities because the groundwater in the Lower Centennial Flat basin is not connected to nearby community water supply sources. Coso Spring, over 10 miles south at an elevation of about 5400 feet, is the water supply for Darwin. The Keeler water supply well, over 10 miles north, is in the alluvial fan west of the Inyo Mountains and is recharged by runoff on the fan. Groundwater in the Lower Centennial Flat basin probably drains to Owens Lake.







**APPENDIX S**

**THE TIMBISHA SHOSHONE TRIBAL HOMELAND  
A DRAFT SECRETARIAL REPORT TO CONGRESS  
TO ESTABLISH A PERMANENT TRIBAL LAND BASE AND  
RELATED COOPERATIVE ACTIVITIES**







# **THE TIMBISHA SHOSHONE TRIBAL HOMELAND**

A Draft Secretarial Report to Congress  
to  
Establish a Permanent Tribal Land Base  
and  
Related Cooperative Activities

Developed by Representatives of the  
Timbisha Shoshone Tribe  
and the  
Department of the Interior



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## EXECUTIVE SUMMARY

For thousands of years, the Timbisha Shoshone Tribe has lived in and around the area that is now Death Valley National Park. For many years, the Tribe sought to obtain trust land within its aboriginal homeland. In 1994, Congress enacted the California Desert Protection Act, P.L. 103-433, including Section 705(b) which begins to address the need of the Tribe for a recognized land base. Section 705(b) directs the Secretary of the Interior to conduct a study to identify lands suitable for a reservation for the Timbisha Shoshone Tribe which has no land base at present. The Section provides:

*The Secretary, in consultation with the Timbisha Shoshone Tribe and relevant Federal agencies, shall conduct a study, subject to the availability of appropriations, to identify lands suitable for a reservation for the Timbisha Shoshone Tribe that are located within the Tribe's aboriginal homeland area within and outside the boundaries of Death Valley National Monument and the Death Valley National Park as described in part A of this subchapter. California Desert Protection Act, Section 705(b).*

This report contains the recommendations of the joint Federal-Tribal negotiating team responsible for carrying out the suitability study. The suitability study was conducted on a government-to-government basis with officially designated representatives of the Timbisha Shoshone Tribe and the Department of the Interior. It resulted in a comprehensive integrated plan to establish a permanent Homeland for the Tribe based on an analysis of the suitability of various lands within the tribal ancestral homeland in relation to basic tribal needs and consistency with Federal land management and stewardship mandates.

Among the factors restricting the ability of the negotiating team to identify a single contiguous area suitable for the establishment of a reservation are: natural limitations, including climate, geology, and the availability of water; mining claims; special resource designations such as Wilderness and Area of Critical Environmental Concern; and the availability of infrastructure such as roads, power, and other services.

This report concludes that the transfer of several separate parcels of land is needed and recommends transfer of 7,500 acres in trust to the Timbisha Shoshone Tribe. These parcels include: 1) 300 acres at Furnace Creek in Death Valley National Park encompassing the present Timbisha Village Site subject to jointly developed land use restrictions designed to ensure compatibility and consistency with tribal and Park values, needs and purposes; 2) 1,000 acres of land now managed by the Bureau of Land Management at Death Valley Junction, California, east of the Park; 3) 640 acres of land now managed by the Bureau of Land Management in an area identified as Centennial, California, west of the Park; 4) 2,800 acres of land now managed by the Bureau of Land Management and classified as available for disposal near Scotty's Junction, Nevada, northeast of the Park; and 5) 2,800 acres now managed by the Bureau of Land Management and classified as available for disposal near Lida, Nevada, north of the Park. Based on the proposed land use restrictions and opportunities for future close collaboration with the Tribe, the National Park Service and the Tribe believe that the limited transference of Park land described above will enhance the cultural and historical interpretative opportunities available to



the visiting public, but will not adversely impact Death Valley National Park. The report also seeks authorization to purchase two parcels of approximately 120 acres of former Indian allotted lands in the Saline Valley, California, at the edge of the Park, and the 2,430 acre Lida Ranch near Lida, Nevada from private owners.

This report also recommends a number of other arrangements authorizing tribal access to and traditional uses of, certain designated areas which will remain in public ownership. One example of the latter type of arrangement is the recommendation to seek designation of an area primarily in the western part of Death Valley National Park as the Timbisha Shoshone Natural and Cultural Preservation Area within which low impact, environmentally sustainable, tribal traditional uses, activities and practices will be authorized subject to existing law and a jointly established management plan agreed upon by the Tribe, the National Park Service and the Bureau of Land Management. The Tribe, the National Park Service, and the Bureau of Land Management see such a designation as a way of recognizing the common interests of the agencies and the Tribe in conserving and protecting this area. Examples of traditional tribal uses, practices and activities include seasonal camping, gathering pinon nuts and other plants for medicinal purposes, but not the taking of wildlife within the Park.

The proposed legislation will also expand Park purposes by recognizing the many contributions of the Timbisha Shoshone Tribe to the history, ecology, and culture of Death Valley National Park. It will affirm that the continued presence of the Tribe in the Park and in other parts of its ancestral homeland benefits the Park, the Tribe, and the American people.

A number of legislative and administrative actions will be necessary to implement these recommendations. A summary of those actions follows.



**Table 1. Integrated Framework for Establishing a Timbisha Shoshone Permanent Land Base and Related Cooperative Activities**

Location	Proposed Legislative Action	Proposed Departmental Action
<p><b>Furnace Creek, Death Valley National Park</b></p>	<ul style="list-style-type: none"> <li>◆ Legislation authorizing establishment of the Timbisha Shoshone Community Development and Adobe Restoration Area (a 300 acre trust parcel including a 25 acre non-development zone at the north end of the parcel), for community, residential, historic restoration, and visitor-related economic development, including requirements for jointly agreed upon standards for development that would require consistency with tribal and park values, needs, and purposes. The Tribe shall be granted a right-of-way for ingress and egress on Highway 190.</li> <li>◆ Legislation providing for reserved water rights for tribal trust lands at Furnace Creek effective on the date legislation becomes law.</li> <li>◆ Legislation authorizing establishment of the Buffer and the Mesquite Management Areas of approximately 3,000 acres, including authorization for restricting visitor use in these areas.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization.</li> <li>◆ Expand and implement a water conservation strategy in cooperation with all water users at Furnace Creek.</li> <li>◆ Negotiate and adopt jointly agreed upon development standards for the tribal trust parcel at Furnace Creek.</li> <li>◆ Negotiate and enter into a cooperative agreement between the Tribe and the National Park Service providing for traditional, ecologically sustainable, tribal practices within the Mesquite Use Area.</li> <li>◆ Negotiate and enter into a cooperative agreement between the Tribe and the National Park Service for management of the Adobe Restoration Area in an environmentally sensitive manner to preserve the historic adobes and remove stands of invasive salt cedar.</li> </ul>



Location	Proposed Legislative Action	Proposed Departmental Action
<b>Timbisha Shoshone Natural and Cultural Preservation Area</b>	<ul style="list-style-type: none"> <li>◆ Legislation authorizing designation of this area as the Timbisha Shoshone Natural and Cultural Preservation Area for low impact, ecologically sustainable, traditional practices, uses and activities by the Timbisha Shoshone Tribe pursuant to a jointly established management plan agreed upon by the Tribe, the National Park Service, and the Bureau of Land Management.</li> <li>◆ Legislation authorizing and directing the establishment and maintenance, in perpetuity, of a tribal resource management field office, garage and storage area at Wildrose, all within the area of the existing ranger station, and traditional use camps at Wildrose and Hunter Mountain in locations agreed to by the Tribe and the National Park Service.</li> <li>◆ Legislation authorizing funds for the acquisition of the Indian rancheria site in the Saline Valley to be transferred to the Tribe to be held in trust.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Negotiate and enter into a joint management plan agreed upon by the Tribe, the National Park Service and the Bureau of Land Management. The joint management plan will include provisions for tribal facilities at Wildrose and for traditional camps at Hunter Mountain, two areas of special significance to the Tribe.</li> <li>◆ Delineate area on all future National Park Service maps.</li> <li>◆ Develop and conduct a joint Tribal-National Park Service pilot demonstration project regarding management of the Saline Valley Springs.</li> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization, appropriation, and purchase.</li> <li>◆ Negotiate and enter into a cooperative agreement between the Tribe and NPS ensuring tribal access and use of the Mesquite Springs and Daylight Pass and to allow the Tribe to participate in resource protection in the area.</li> </ul>



Location	Proposed Legislative Action	Proposed Departmental Action
Death Valley Junction-- California	<ul style="list-style-type: none"> <li>◆ Legislation authorizing the transfer of approximately 1,000 acres of land from the Bureau of Land Management to the Tribe to be held in trust.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization.</li> </ul>
Centennial, California	<ul style="list-style-type: none"> <li>◆ Legislation authorizing transfer of approximately 640 acres, one section in size, from the Bureau of Land Management to the Tribe to be held in trust for the Tribe in the area of Black Rock Springs.</li> <li>◆ Legislation providing for purchase of private surface water rights.</li> <li>◆ None required</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization.</li> </ul>
Eagle Mountain and Warm Sulphur Springs, California	<ul style="list-style-type: none"> <li>◆ None required</li> </ul>	<ul style="list-style-type: none"> <li>◆ Negotiate and enter into a cooperative agreement between the Tribe and the Bureau of Land Management to ensure Tribal access and use of these areas and to allow the Tribe to participate in resource protection.</li> </ul>
Scotty's Junction, Nevada	<ul style="list-style-type: none"> <li>◆ Legislation authorizing the transfer of approximately 2,800 acres from the Bureau of Land Management to the Tribe to be held in trust.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization.</li> </ul>
Lida, Nevada -- Tribal Community Parcel	<ul style="list-style-type: none"> <li>◆ Legislation authorizing the transfer of approximately 2,800 acres of land from the Bureau of Land Management to the Tribe to be held in trust.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization.</li> </ul>
Lida, Nevada -- Tribal Use Area	<ul style="list-style-type: none"> <li>◆ None needed</li> </ul>	<ul style="list-style-type: none"> <li>◆ Negotiate and enter into a cooperative agreement between the Tribe and the Bureau of Land Management ensuring tribal access and use of the area and to allow the Tribe to participate in resource protection activities in the area.</li> </ul>



Location	Proposed Legislative Action	Proposed Departmental Action
Lida, Nevada-- Lida Ranch	<ul style="list-style-type: none"> <li>◆ Legislation authorizing the purchase of Lida Ranch, approximately 2,430 acres, to be taken into trust for the Tribe and purchase of available surface water which would transfer with the land.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Complete transfer of land to the Tribe in trust upon legislative authorization, appropriation, and purchase.</li> </ul>
Ash Meadows National Wildlife Refuge Nevada -- Cooperative Activities	<ul style="list-style-type: none"> <li>◆ None needed</li> </ul>	<ul style="list-style-type: none"> <li>◆ Negotiate and enter into a cooperative agreement between the Tribe and the Fish and Wildlife Service to provide for compatible tribal access and use of the area and to allow the Tribe to participate in cultural resource protection in the area.</li> </ul>



Location	Proposed Legislative Action	Proposed Departmental Action
<p><b>Other Agreements and Special Arrangements</b></p>	<ul style="list-style-type: none"> <li>◆ Legislation amending the purposes section of the Death Valley National Park enabling legislation to: (a) recognize the contributions of the Timbisha Shoshone Tribe to the history, ecology, and culture of Death Valley National Park and other portions of their ancestral homelands; (b) recognize that the continued presence of the Tribe in the Park and other parts of its ancestral homelands benefits the Park and the American people; and, (c) specify that traditional use of the Park by the Tribe is an official Park purpose.</li> <li>◆ Legislation authorizing preferential hiring for tribal members in the Park.</li> </ul>	<ul style="list-style-type: none"> <li>◆ Design and place new signs identifying the Timbisha Shoshone Homeland at appropriate locations in consultation with the Tribe.</li> <li>◆ Support tribal requests for funding from other sources.</li> <li>◆ Establish a presumption that pilot projects, if successful, will lead to long-term agreements and be incorporated into Park management plans.</li> <li>◆ Authorize use of Park fees to fund Park-related tribal activities and tribal cultural enhancement projects.</li> <li>◆ Submit Park base budget increase proposal to fund Park-related tribal activities and tribal cultural enhancement projects.</li> <li>◆ Submit Bureau of Indian Affairs base budget increase proposal to provide administrative services related to newly established trust lands.</li> </ul>



## PREFACE

*As a new nation, the United States took virtually all of the ancestral lands of our Native American predecessors leaving them with little foundation for their own distinct cultures to survive. As a visionary nation, we invented national Parks so that America's most evocative places could be preserved forever. Often those Parks, and the lands most important to Native Americans, are one and the same. Such is the case in the Death Valley area where much of the Timbisha Shoshone Homeland and Death Valley National Park not only coincide physically but are highly valued by the Tribe, the National Park Service, and the American public.*

*If we resolve to make a better nation for our children, a nation that recognizes the promises of America's best ideas and is not bound to the thought that the decisions of the past are the best that we can do, then we have a unique opportunity to rectify the existing situation where the Tribe lives on its ancestral lands without the ability to achieve self-determination and economic independence.*

*Consequently, we resolved in Death Valley, and in the surrounding ancestral homelands of the Tribe, to value the beliefs and needs of both nations, to be fair to the Timbisha Shoshone and to the people of the United States. We seek to restore lands on which the Timbisha Shoshone can exercise their sovereign tribal rights guaranteed by our Constitution and courts, and to develop lasting cooperative arrangements with the Tribe. We do so in the context of a better and more holistic vision of what Death Valley National Park and other parts of the Tribe's ancestral lands can become with an expanded and renewed tribal presence and the commitment to such a presence by the National Park Service and the Bureau of Land Management.*

*John J. Reynolds  
Director, Pacific West Region  
National Park Service*



## PREFACE

*The word 'timbisha' refers to a red material found in the Black Mountains not far from our tribal village at Furnace Creek. Our ancestors, the Old Ones, used this material, called ochre in English. They would use it like paint on their faces, to protect them and heal them. The Old Ones believed that this material, 'timbisha', strengthened their spirituality.*

*Our people, the Timbisha, are named after this material and so is our valley. The term 'Death Valley' is unfortunate. We refrain from talking about death. Instead, we refer to "one who it has happened to." Even more importantly, this is a place about life. It is a powerful and spiritual valley that has healing powers and the spirituality of the valley is passed on to our people.*

*Our people have always lived here. The Creator, Appü, placed us here at the beginning of time. This valley, and the surrounding places that the Old Ones frequented, is 'tüpipüh', our Homeland. The Timbisha Homeland includes the valley and the nearby mountains, valleys, flats, meadows, and springs.*

*Then others came and occupied our land. They gave us diseases and some of our people died. They took away many of our most important places. The springs....the places we used for food. The places we used for our spiritual practices. They didn't want us to carry on our religion or our ceremonies or our songs or our language. The names of our places became unknown to some of our people.*

*We never gave up. The Timbisha people have lived in our Homeland forever and we will live here forever. We were taught that we don't end. We are part of our Homeland and it is part of us. We are people of the land. We don't break away from what is part of us.*

*Still, a lot has been lost. The current situation is very serious. We have no land at all. Very few of our people are employed. They need, for their welfare, housing and economic development. The plan negotiated between the Timbisha and the Department of the Interior will be of great assistance in bringing economic self-sufficiency, done sustainably, to my Tribe.*

*Economic development, if it is to work, must be done by the Timbisha people themselves. Now, there are very few opportunities within the Tribe. This plan will bring many opportunities within the Tribe. It is significant that this will be done, not just in one place, but in several places within the Homeland, because that is how the Old Ones always did it.*

*Most important of all, I envision that this plan will bring the people closer together. Many of us will be able to live and work in tribal communities once again. Our cultural preservation program will be greatly expanded once we have a tribal center. What we are fundamentally doing is re-educating many of our people as to who they are. The Timbisha people are not from some other Homeland. This is our Homeland. We will stay on, and this plan will give us the opportunity to do that in a self-sufficient, sustainable, and spiritual way.*

*Pauline Esteves*

*Timbisha Shoshone Tribal Chairperson*



## **PART 1 - INTRODUCTION**

### **A. Purpose**

This report is submitted pursuant to Section 705(b) of the California Desert Protection Act of 1994 which directs the Secretary of the Interior, in consultation with the Timbisha Shoshone Tribe, to conduct a study to identify lands suitable for a reservation for the Timbisha Shoshone Tribe both inside and outside Death Valley National Park. This report identifies those areas determined suitable for the purposes outlined in the Act.

Areas within and outside the boundaries of Death Valley National Park were studied beginning with an examination of the Timbisha village at Furnace Creek. Historically, the Timbisha seasonally inhabited numerous sites within an expansive geographic area including all of what is now Death Valley National Park. Since 1936, however, the Tribe has made its home in a small village at Furnace Creek situated on approximately 40 acres of Park lands. The village also serves as the tribal headquarters. It is located approximately one mile south of Park headquarters immediately adjacent to the Furnace Creek Ranch, a private inholding owned by the Amfac Corporation.

The recommendations in this report constitute a comprehensive, integrated plan to establish a reservation for the Tribe. However, rather than identifying one parcel of land for a reservation, the negotiating team concluded that no single parcel could meet the basic needs of the Tribe and be compatible with the land management and stewardship responsibilities of the Bureau of Land Management and the National Park Service.

Among the factors restricting the ability of the negotiating team to identify a single contiguous area suitable for the establishment of a reservation are: natural limitations, including climate, geology, and the availability of water; mining claims; special resource designations such as Wilderness and Areas of Critical Environmental Concern; and the availability of infrastructure such as roads, power, and other services. Equally important was the significance of particular lands in relation to the culture and history of the Tribe. These factors as well as the traditional Timbisha Shoshone settlement pattern of dispersed residences and seasonal use of particular areas within large homelands were major considerations in recommending that 7,500 acres of land be taken into trust in seven separate areas. Each land area is described in Part 3, below, along with a discussion of the analysis supporting each recommendation.

### **B. The Process of Conducting the Suitability Study**

In January, 1998, a Federal and tribal negotiating team was established to develop an integrated, comprehensive plan to complete the suitability study. The tribal team was comprised of Timbisha tribal officials and consultants. The Federal team members were drawn from the headquarters, regional, and field offices of the Assistant Secretary for Fish and Wildlife and Parks, Bureau of Land Management, the Bureau of Indian Affairs, the Office of American Indian Trust, the Bureau of Reclamation, and the National Park Service. The tribal negotiating team leader was Tribal Chairperson Pauline Esteves. The Federal negotiating team leader was John Reynolds, Director, Pacific West Region,



National Park Service. Professor Charles Wilkinson of the University of Colorado Law School, facilitated the process. A full listing of the two teams is found in Appendix A.

All study activities were carried out in accordance with the Ground Rules and Framework for Achieving a Timbisha Shoshone Homeland adopted at the March 1998 session. See, Appendix B. To emphasize the intergovernmental nature of the negotiations, the Framework provided in part:

*The parties, working jointly as governments and in full cooperation, agree to complete studies of areas inside and outside the Park of particular significance to the Tribe. The parties will use their best efforts to reach agreement on joint proposals resulting from each study.*

With respect to substantive issues, the negotiators agreed to use an "interest-based" approach in the negotiations focusing on the underlining concerns and broad objectives of each team member. By the end of the first meeting, the set of shared interests listed in Appendix C were agreed upon and recorded for use throughout the negotiations.

Two fundamental principles flow from these shared interests. First, it is in the best interest of both the Tribe and the United States to secure the Tribe a permanent land base within the Homeland of sufficient size to meet the housing, economic, employment, governmental, and cultural needs of the Tribe and its members. The unresolved land status of the Tribe has created long standing hardships for the Timbisha people and has made it difficult for the Tribe and the agencies that now manage the Homeland to achieve mutually beneficial relationships.

Second, the parties agreed that the recommendations concerning lands suitable for a reservation would be consistent with the shared responsibility of the Timbisha Shoshone Tribe and the National Park Service to protect and preserve the natural, cultural, and historic resources of Death Valley National Park for generations to come.

The negotiations were supplemented by related fieldwork. Tribal and Federal team members made joint site visits to National Park Service and Bureau of Land Management land parcels of interest to the Tribe. This activity was extremely important in relation to the issue of suitability as the site visits allowed the team to view the landscape in relation to the various uses proposed by the Tribe. Tribal representatives worked with Billy Garrett and Miki Stuebe from the National Park Service Denver Service Center to identify tribal concerns and desired land uses. Mike Berch, a realty specialist from the Office of American Indian Trust in Denver participated in these field visits and at the negotiation meetings as an advisor to the Tribe. Federal team members sought information from their respective agencies on parcels of interest to the Tribe. Such information included land ownership, use restrictions, potentially conflicting use rights, and water availability.

This process of eliciting proposed tribal uses, conducting field visits, developing maps and GIS displays, researching possible encumbrances, and holding further discussions made it possible for both tribal and Federal representatives to understand the underlying concerns of all parties, and to develop recommendations that could accommodate the parties shared interests.



### **C. The Timbisha Shoshone Homeland**

The traditional ancestral homeland of the Timbisha Shoshone Tribe encompasses a vast territory of up to 11 million acres in the region of Death Valley, California, and extends into Western Nevada.<sup>1</sup> The Homeland, shown on Map 1, is the geographic area within which the Tribe has a historical relationship with the land, and is the area within which the Tribe identified lands of particular historical, cultural, and economic interest which were then analyzed to determine if they were suitable to become trust lands.

The Homeland is almost entirely within the Mojave Desert, a land of "hills and mountains, plains and alluvial fans, plateaus, badlands, pediments, river washes, playas, and sand dunes,"<sup>2</sup> as well as springs, hot springs, creeks and waterfalls. Elevations range from 11,000 feet to below sea level while temperatures range from below zero on the mountain peaks to more than 120 degrees on the valley floors. Tribal knowledge and use of this vast region is described in Part 2.

### **D. Suitability Criteria Used in the Study Process**

One of the first major steps in the negotiation process was to identify appropriate factors to determine whether lands within the Homeland were "suitable" for a reservation. The suitability criteria used in the study process are based on the set shared interests articulated by the negotiating team and listed in Appendix C.

The suitability criteria are as follows:

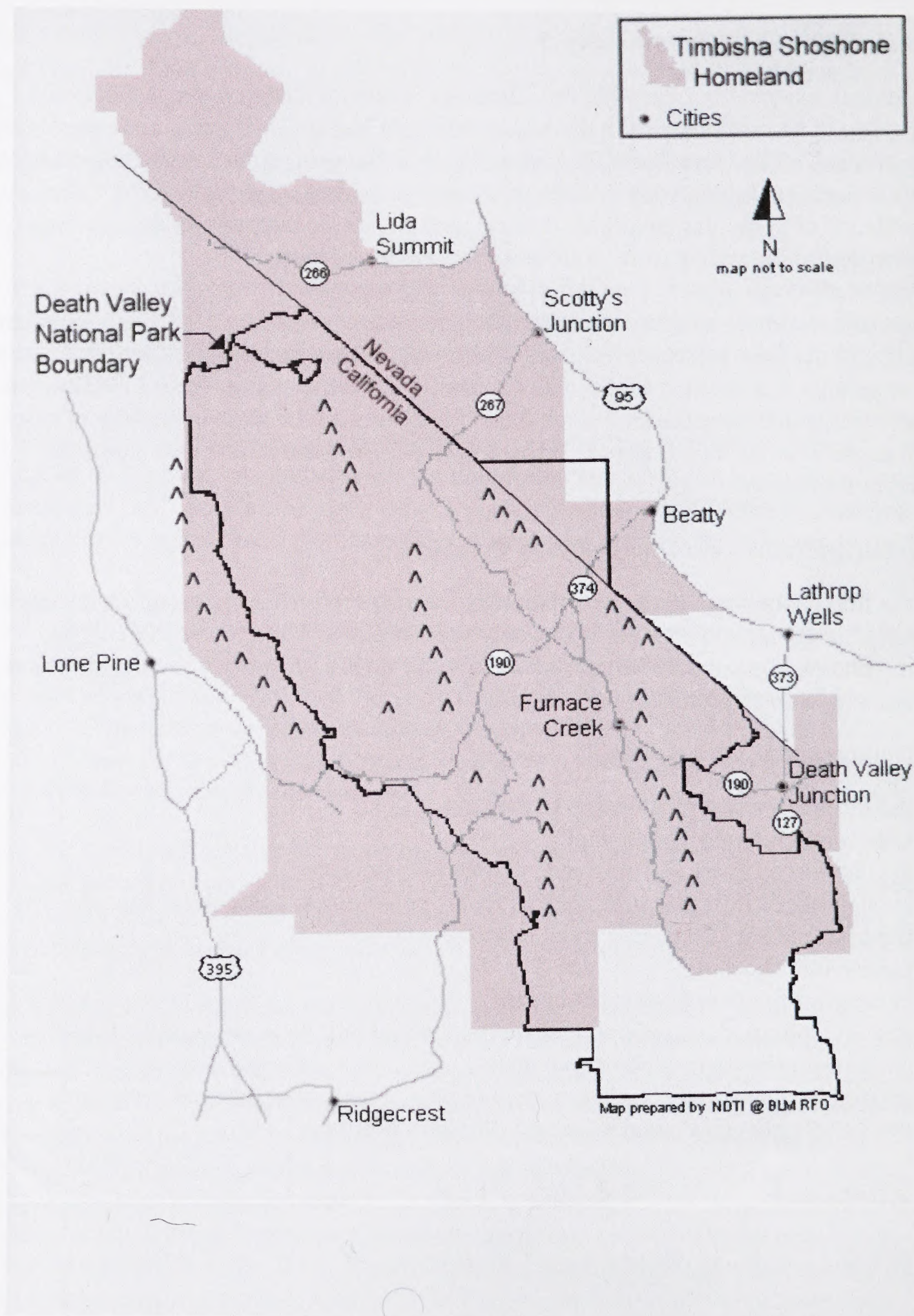
- ◆ the historical tribal relationship to the land;
- ◆ effects of climate and geography;
- ◆ availability of water and existence of natural resources;
- ◆ availability of infrastructure, such as roads, power lines, and other public services
- ◆ the potential for sustainable tribal development;
- ◆ potential for housing;
- ◆ compatibility with existing land uses;
- ◆ special land use designations such as national park land, Wilderness, critical habitat; and areas of critical environmental concerns;
- ◆ existing encumbrances such as mining claims, leases, and rights-of-way; and,
- ◆ the Tribe's historical residential and cultural use areas.

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<sup>1</sup> Catherine S. Fowler, et al., *Timbisha Shoshone Tribal Land Acquisition Program: Anthropological Data on the Twelve Study Areas*, Cultural Resources Consultants, Inc., Reno, Nevada. Prepared for the Timbisha Shoshone Tribe, 1995a.

<sup>2</sup> Peter Rowlands, et al., the Mojave Desert in *Reference Handbook on the Deserts of North America*, Gordon Bender, ed. Westport, Greenwood Press 1980





*Map 1: Timbisha Shoshone Homeland<sup>3</sup>*

<sup>3</sup> This map is based upon the analysis of Catherine S. Fowler, et al., 1995a.



## **PART 2 -- HISTORICAL PERSPECTIVE AND THE NEED FOR A PERMANENT TRIBAL LAND BASE**

### **A. Relationships of the Timbisha Shoshone People to the Death Valley Area**

For millennia the Timbisha Shoshone have been a people inextricably tied to the beautiful but austere desert landscape. It has been their home and the source of their sustenance for countless generations. The Timbisha have an immense attachment to the land and a strong sense of responsibility for it. Their knowledge of the area and the life within it is unequalled.

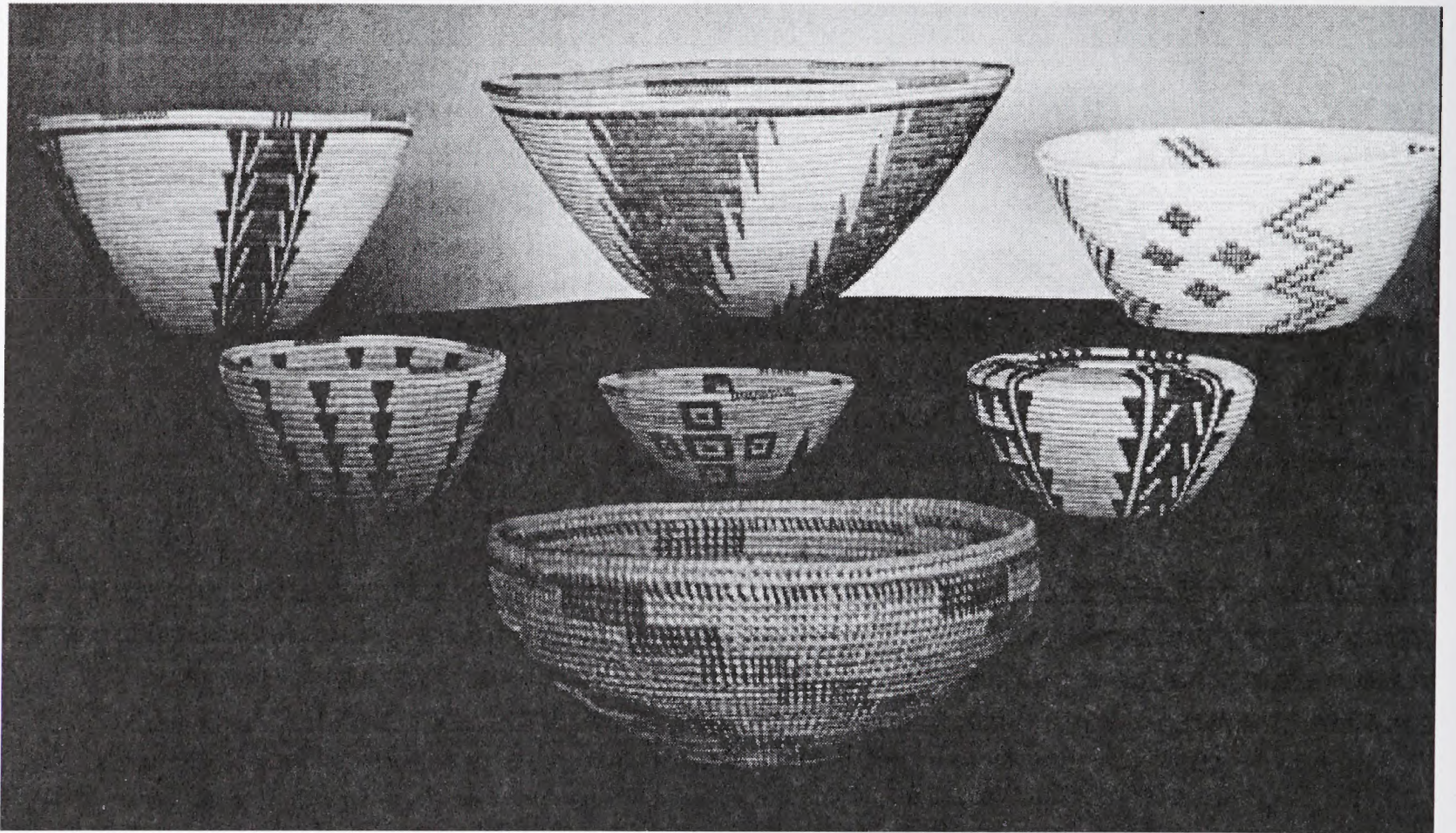
Over the ages, the Timbisha Shoshone have devised ingenious methods for managing the natural resources of their Homeland. One such innovation was the Tribe's use of fire to control vegetation in marshes and to encourage seeds and other plants known to be fire followers. Rich harvests and lush plant growth resulted from the time and effort the people traditionally spent clearing and pruning plants like pinon, mesquite, and willow and transplanting and cultivating native domesticated plants such as devil's claw, corn, beans, and squash. Tribal knowledge also included the location of water sources which they regularly cleaned and kept clear of debris to ensure a continued supply of clean, potable water for humans, animals, and migratory birds.<sup>4</sup> Some springs are choked with vegetation because the Tribe has not been allowed to continue its traditional care-taking activities. The recommendations in this report provide opportunities for the Tribe and the National Park Service to work together to restore these important resources in the Park.

The Tribe is known for a basketry tradition that the Tribe very much wants to continue. Historically, baskets were made to collect seeds, carry pine cones and mesquite beans, and for parching and winnowing nuts and seeds. Baskets were made for boiling food and holding water, and for trapping birds. The provisions of this plan relating to traditional uses by the Tribe in certain areas inside and outside the Park support the Tribe's desire to reinvigorate this important tradition.

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<sup>4</sup> This section is substantially based on the ethnobotanical work of Catherine S. Fowler, particularly the report cited in Footnote 1, and Catherine S. Fowler, Molly Dufort, Mary Rusco and the Historic Preservation Committee of the Timbisha Shoshone Tribe, *Residence without Reservation: Ethnographic Overview and Traditional Land Use Study, Timbisha Shoshone, Death Valley National Park, California. Phase 1* 1995b.





*Illustration 1: Timbisha Shoshone Baskets*

Although mining interests, homesteaders, and ranchers began moving into Death Valley in the 1850s, the Timbisha maintained their traditional life style until well into the 20th Century.

Traditionally, the Timbisha families would move into the mountains during the hot summer months and return to the mild valley floor in winter.

*There were 150 people living here in clusters from the valley in the winter to the mountains in the summer. It was a community with people beyond the mountains and the valley. They ate with the seasons. My auntie lived to be 105 years old. She told me, "We ate rabbits. When it became warm we would eat springtime greens. When we would get a piece of animal fat, we would give it to grandma who needed fat. We are related to animals and we respect them." Pauline Esteves*

## **B. History of Tribal Dislocation**

The process of Timbisha dislocation began in the 1850's and accelerated through the 1870's and 1880's when homesteaders and ranchers moved into the area to supply mining camps and other settlements that served the miners. Dislocation increased even more dramatically in the century. Between the mid-1920s and 1936, the Tribe was forced to move four times within the area that is now Furnace Creek in Death Valley National Park.

In the 1920's, the Pacific Coast Borax Company built a large ranch house north of the present Post Office at Furnace Creek. At that time, tribal members lived near the ranch house. During this time, the Company experimented with the cultivation of grapes and citrus and brought cattle, sheep, chickens, and cottonwoods into the area. Chairwoman Pauline Esteves remembers the Company's ranch and when the date trees, now the most visually dominant tree



at the oasis, were planted. In those days, many Timbisha members worked at the Ranch and on the 20-mule team wagons. They cultivated gardens of their own. In the late 1920s, the Tribe was directed to leave the ranch and move to what is now the Sunset Campground area. At this time, the families continued to live in traditional brush homes. Water was available from the Furnace Creek ditch.

*(T)hey were living in shelters made out of...bush shelters. They used the arrowweed a lot for their shelters...and in order to keep cool, what my mother told me...they'd get water from the creek because they were very close to the creek. And they would wet down the shelters..and then they would also throw water on their gravel floors, and they would put canvas over it and that way they would stay cool. Pauline Esteves*

In the early 1930s, the Company directed the Tribe to leave the Sunset Campground area and to move to where the Visitor Center is located today. Although no water was available here, the Tribe complied with the Company's directive with the understanding that piped water would be provided. Tribal members constructed homes and planted gardens, but after only a few years, the Tribe was forced to move once more.

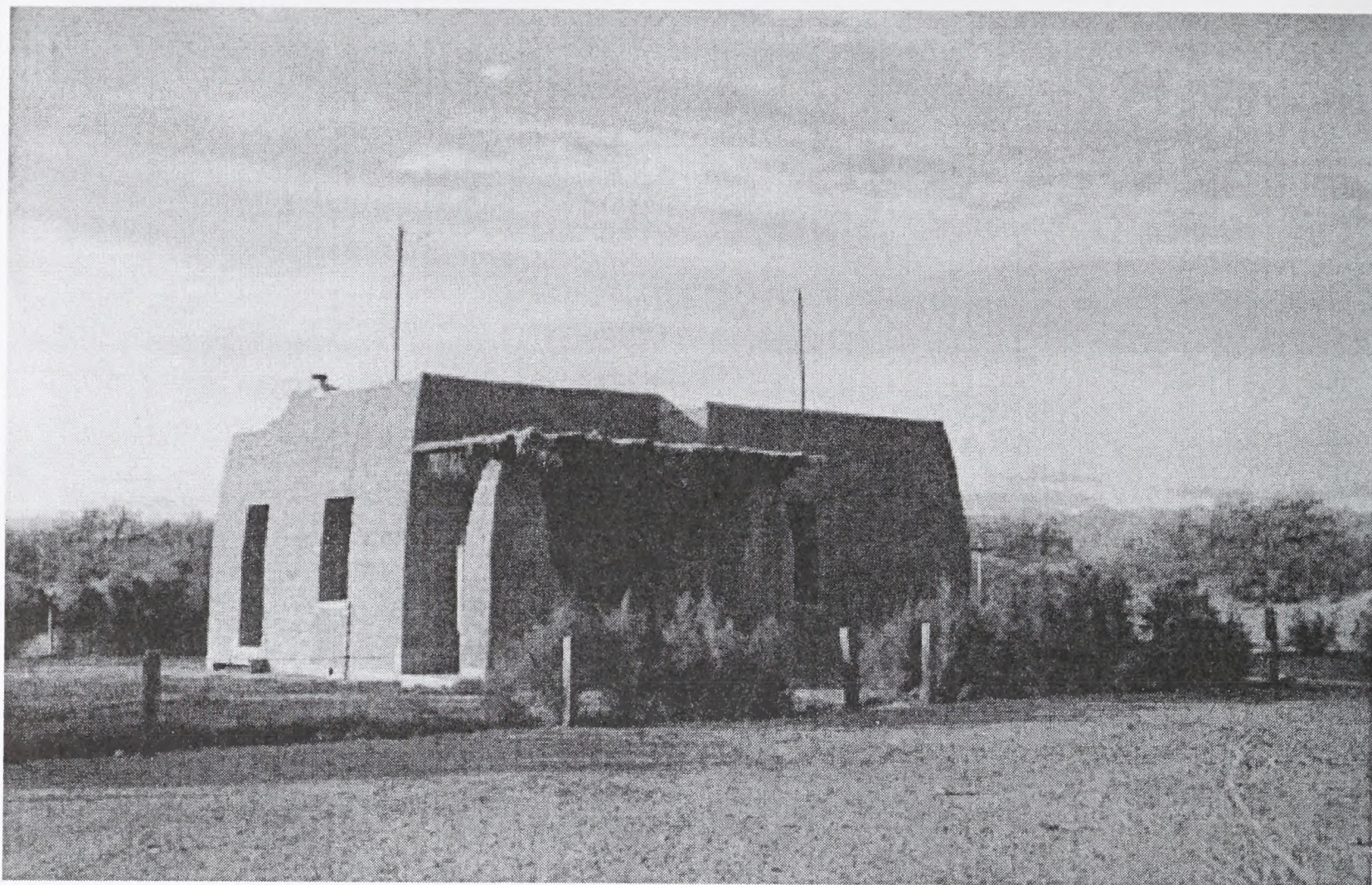
*Illustration 2: Timbisha Shoshone summer homes at Furnace Creek, Death Valley National*



*Park circa 1929. The young girl on the left is Pauline Esteves*

*Illustration 3: Adobe home of Rosie Esteves, 1939*





Another major disruption in the lives of Tribal members occurred in 1933 when President Herbert Hoover established Death Valley National Monument. The legislation creating the Monument was silent on the question of Timbisha Shoshone land tenure and no other accommodation for Tribal land was made. To address the Tribe's situation, the National Park Service and the Bureau of Indian Affairs entered into an agreement in 1936 to establish a tribal village site and to construct adobe residences. The residences were built by the Civilian Conservation Corps and several remain today. They are important historical structures that the Tribe plans to restore under this plan. The agreement also provided for a tribal gift shop and laundry business -- an early indication of the need for tribal income sources within the Park that were considered compatible with Park purposes at that time. As the houses were built, the Timbisha moved to their present location, south of Furnace Creek Ranch. At first, only some of the houses were finished and some of the families were forced to live in tents. The tribal settlement near the Visitors Center was destroyed.

Unable to continue hunting and caring for the land within the Monument, and with very limited economic opportunities from the National Park Service and the Fred Harvey ( now AmFac) Corporation which supplies lodging, food, and other services to visitors to the Park, many families left Furnace Creek. Today, about 50 tribal members live in seven adobe residences and 11 mobile residences at Furnace Creek.

Over the years relationships between the Tribe and the National Park Service have suffered due to the Tribe's lack of a secure land base. The Tribe has felt that the National Park Service did not want them in the Park. This has come to be understood by the Tribe as a National Park Service policy designed to drive them out.



*Our people maintained an existence. Even through the days of the National Park Service trying to do everything in their power to force the people to leave their Homelands. There was a Park policy to eliminate the local Indians. The adobe homes were washed down by high-power water hoses, or they were set on fire when the people left the Valley for the highlands during the summer. This stopped our people from moving to the mountains during the hot summers. The people were forced to remain on the Valley floor in the heat with no electricity, which finally arrived in the early 1970s. It has taken a lot for our people to sit across the table from the Federal government and work out an agreement for our continued existence within Death Valley National Park. It is especially difficult for our elders who have personal memories to draw on. That distrust has been there for many, many years. But now we must remember that we are two nations at the table, sharing words, ideas, and talking.*

*Barbara Durham*

### **C. The Timbisha Today**

While the Tribe has been formally organized since 1937, its present tribal government organization was established after the Tribe was Federally recognized in 1983. The Tribal Council is made up of the Chair, Vice-Chair, Secretary-Treasurer and two additional Council members, elected by the General Council. The governing body of the Tribe is the General Council which consists of all tribal members 16 years of age or older. Any member of the Tribe who is 18 years of age is eligible to serve as a member of the Tribal Council.

The lack of secure land tenure has been a major barrier to the social and economic advancement of the Timbisha Shoshone Tribe. Of the 285 enrolled members, nearly 40% are unemployed, a rate more than three times that of Inyo County and four times higher than the State of California.<sup>5</sup>

More than 50% of the Tribe's population is in the active labor force, but almost 25% work only part time. More than 80% of the Tribe's households fall below the 1993 poverty threshold, which is \$13,950 for a U.S. family of four.<sup>6</sup>

Tribal members work in a variety of occupations ranging from nursing to unskilled labor. The Tribe employs some tribal members while others are employed by AmFac, the Park, and the United States Post Office. A number of young tribal members are attending colleges, including Notre Dame and the University of California at Los Angeles, and several have majored in wildlife management in the hope of finding employment in resource management positions in the Death Valley region.

*We need a secure Homeland where we can rebuild our community and overcome the dispersing of the Tribe--a place where people can live, work, and plan as a community. We need to create economic development, employment, and income potential for our people. We need a strategy for the Tribe to participate in the protection of the Park--the protection of*

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<sup>5</sup> Timbisha Shoshone Tribe "Tribal Needs Assessment and Socio-Economic Profile", Vallo and Associates, Sacramento, California for California Indian Manpower Consortium, Inc. Sacramento California. March 1994

<sup>6</sup> *ibid.*



*wildlife, plants, medicinal plants and other vegetation. We need to establish an Indian presence in the Park, where we can tell the Tribe's story for Americans and for foreign visitors. We need a place to teach our people how to live correctly, to follow our traditions and ceremonies. The Tribe is not just thinking of today, but of lasting opportunities for many generations of people. Barbara Durham*

*We need housing for tribal members to move back. Some members have dropped their enrollment because there is no housing. It is too late for some of the people. Too late, if the Tribe cannot offer housing and economic development. Pauline Esteves*

*Families are the most important. When they move away, it's beyond normality--inherently beyond instincts. Family is everything. Separating families is not improving humanity. My mother, my nephews and nieces need a place to identify with. This is urgent! We need trees, gardens, homes. Leroy "Spike" Jackson*

The lack of a land base has prevented the Tribe from accessing Federal housing or other community development programs. As a result, many Timbisha tribal members have moved to other Indian communities like the Lone Pine Paiute-Shoshone Reservation, the Big Pine Paiute Tribal Reservation, and the Bishop Paiute Reservation in Owens Valley. Some tribal members live in Nevada in Beatty, Schurz, Reno and Las Vegas. The Tribe is committed to preserving its cultural and social integrity and sees the establishment of a land base as the key to its continued survival as a people. Timbisha tribal members seek the security that having land in trust status will provide.

The geographic dispersion of tribal members impedes communication and full participation in tribal government. This plan provides for a land base on which to build an efficient, effective, government center.

*The Tribe is recognized in name only. The community building is built on skids because we were not allowed to put a permanent foundation in. The new sign is the first thing to go into the ground. That was two years ago on Memorial Day (1996). Barbara Durham*

*Our Tribe is losing its culture. We are deprived of being a sovereign nation, deprived of keeping traditions, songs, stories, cultural practices and kinship alive. With the creation of a Homeland for the Timbisha Tribe, we can rebuild our family ties, keep traditions alive, and keep our language intact. I am a full-blooded Timbisha Indian. My mother was born at Wildrose. My father came from the Beatty, Nevada, area. I grew up with them speaking the language every day. I grew up traditionally. I maintain my home in Timbisha because my folks are here. I don't intend to ever move away, and hopefully I'll still be around when tribal development takes place inside and outside the Park. Barbara Durham*



Approximately 57% of tribal members have no health insurance, or rely solely on the health services provided through the Indian Health Service Clinic, and/or Medicare, and/or Medi-Cal. Nearly 40% of tribal members do not receive dental care.<sup>7</sup> Permanent land tenure will provide the Tribe the opportunity to establish health services in the community.

The recommended actions set forth in this report present an integrated strategy to address these and other tribal concerns through the establishment of a tribal land base suitable for housing, a center of tribal government, a health clinic, and opportunities for economic development. The potential for the development of a tribal museum/cultural center, and other appropriate economic activities will ensure a strong tribal presence within and outside the Park for the future.

#### **D. Need for Tribal Land Base**

Although the Tribe has lived in Death Valley for thousands of years, no lands were ever legally set aside for the Timbisha Shoshone. This situation is atypical as historically some accommodation for land rights were made for most tribes when aboriginal lands were acquired by the United States government. Nearly all Federally recognized tribes have land bases. Generally, this was done through a treaty of cession or by Executive Order. In more recent times, tribal lands have been provided through acquisition or by legislative transfer. However, only two Timbisha families received homestead allotments sometime around the turn of the century.

Since 1933, when the Executive Order establishing Death Valley National Monument was signed, the lack of permanent land tenure has been a source of continuing frustration for both the Tribe and the National Park Service. Although many attempts to resolve this issue have been made over the years, it has persisted for decades without a resolution satisfactory from either perspective. Options available under existing National Park Service authorities, such as granting special use permits or negotiating memoranda of agreement are inadequate substitutes for tribal trust status which provides permanence, security, and economic opportunity for the Tribe. Tribal land tenure will also clarify administrative responsibilities for the village area and provide a more appropriate framework for the division of responsibilities among the Tribe, the Park, and the Bureau of Indian Affairs.

Without trust lands, a tribe's access to Federal aid programs designed to benefit tribal communities is impeded, particularly with regard to housing assistance. Federal aid for basic tribal services is also limited. Unless the Tribe secures a land base of sufficient size to ensure sustainable development, its long term economic prognosis is dramatically diminished, as well as its social and cultural integrity. Many Federal services and programs available to Indian tribes through the Bureau of Indian Affairs are dependent upon the existence of tribal trust land. Consequently, even a long-term lease would not

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<sup>7</sup> *ibid.*



make the Tribe eligible for most Indian program funding. A new approach is required that meets the need of the Tribe for a Homeland within Death Valley National Park consistent with Park values and purposes and that also provides opportunities for tribal development outside the boundaries of the Park.

Once the proposed lands are placed in trust for the Timbisha, a number of Federal programs and services can be made available to the Tribe and its members. Many Federal services and programs available to Indian tribes through the Bureau of Indian Affairs are dependent upon the existence of tribal trust land. Consequently, even a long-term lease would not make the Tribe eligible for most Indian program funding. A new approach is required that meets the need of the Tribe for a Homeland within Death Valley National Park consistent with Park values and purposes and that also provides opportunities for tribal development outside the boundaries of the Park.

### **PART 3 - SUITABILITY ANALYSIS AND RECOMMENDED ACTIONS**

#### **A. Introduction**

The recommended actions outlined in this section represent the outcome of an analysis of various lands within the Timbisha Shoshone aboriginal homelands to determine whether they are suitable to be taken into trust for the Tribe based on the suitability criteria described above in Part 1.D. Taken together, these actions will provide a comprehensive integrated plan for a permanent land base for the Tribe.

Areas of particular historical, cultural, and economic importance used by the Tribe both historically and well into recent times were identified and evaluated to determine their suitability as potential trust lands and/or for special tribal uses other than trust. Consideration included an assessment of the Tribe's present and future social and economic needs, tribal historical ties to the lands in relation to current land uses, conservation and preservation needs of the area, and potential resource constraints. Locations were selected in order to establish a foundation for a viable, self-sufficient tribal community within and outside Death Valley National Park given existing critical resources such as water.

All parcels recommended as trust lands are within the tribal Homeland and each is of particular historical and cultural importance to the Tribe. In some cases, the areas were once the homes and gardens of tribal members. Some areas contain burials; others are sacred sites. Still others were camp sites and areas where tribal members gathered and used important food resources such as mesquite, pinon nuts, spring greens, and cared for the springs and other water sources, and the land itself.

The geographic pattern of the areas recommended to be taken into trust reflects the historical Timbisha Shoshone settlement pattern of dispersed residences and seasonal use of particular areas within the broad Homeland. The parcels within the Park, as well as to the west, southeast, north, and northeast of the Park, are located in areas that have been documented historically as having been occupied and used by tribal members during the past century.



*Our land is here. There were settlements west to Panamint Valley to Hunter Mountain to Matarongo Peak. It began in the Saline Valley. I was told by elders from Lida and Beatty, "Our hunters would travel to Timber Mountain and hunt the Big Horn Sheep." The places are all connected. There were protected places, places where the sheep did lambing. There were places that were taboo, where we stayed away from. Pauline Esteves*

*When we come home, to Timbisha, and we come in from the West, as soon as we get near Centennial or near the Saline Valley turnoff, we feel we are home. When we come in from the North, as soon as we get to the Lida Mountains, we're home. From the East, when we come to 3,000 foot level, we're home. From the South, that would be the Harry Wade road leading to Saratoga Springs or even closer to Shoshone, California. We have a big territory. And, every inch of it is ours in a territorial sense. Barbara Durham*

In Death Valley National Park, legislation is requested to transfer 300 acres at Furnace Creek (including a 25-acre non-development zone) to the Tribe in trust. The recommendations include an agreed upon level of development at Furnace Creek consistent with the availability and allocation of water and with Park purposes and values. The Tribe and the National Park Service agree that gaming within Death Valley National Park is inconsistent with tribal and Park purposes and values, and therefore, gaming will be prohibited within the Park. Legislation is also requested to designate approximately 3,000 acres, primarily in mesquite groves, adjacent to the tribal residential area at Furnace Creek, as an area of restricted use to be managed for tribal purposes, including traditional, environmentally sustainable, uses.

In the western side of the Park, legislation is requested to designate the Timbisha Shoshone Natural and Cultural Preservation Area to provide for nonexclusive tribal uses therein, also consistent with Park purposes and values. Existing laws, for example, the Wilderness Act, would be unaffected. There are no recommendations for trust land in this area. Tribal uses will also be agreed to in other areas of the Park using existing authorities.

The center of tribal activities will continue to be at Furnace Creek in Death Valley National Park with the opportunity for tribal members to live and work elsewhere on lands recommended to be transferred to the Tribe in trust.

Outside the boundaries of the Park, legislation is requested to transfer to the Tribe in trust a total of approximately 7,200 acres of land managed by the Bureau of Land Management in four separate parcels. In addition, legislation is requested to authorize and appropriate funds for the purchase of three private parcels previously owned by tribal members to be taken into trust. Tribal uses will also be recognized in agreements in other areas using existing authorities.

All of the parcels, once taken into trust, will constitute the initial reservation of a tribe acknowledged by the Secretary of the Interior under the federal acknowledgment process (see Appendix D)<sup>8</sup>. Therefore, while gaming will be specifically prohibited within the

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<sup>8</sup> Memorandum from Department of the Interior, Associate Solicitor, Division of Indian Affairs,

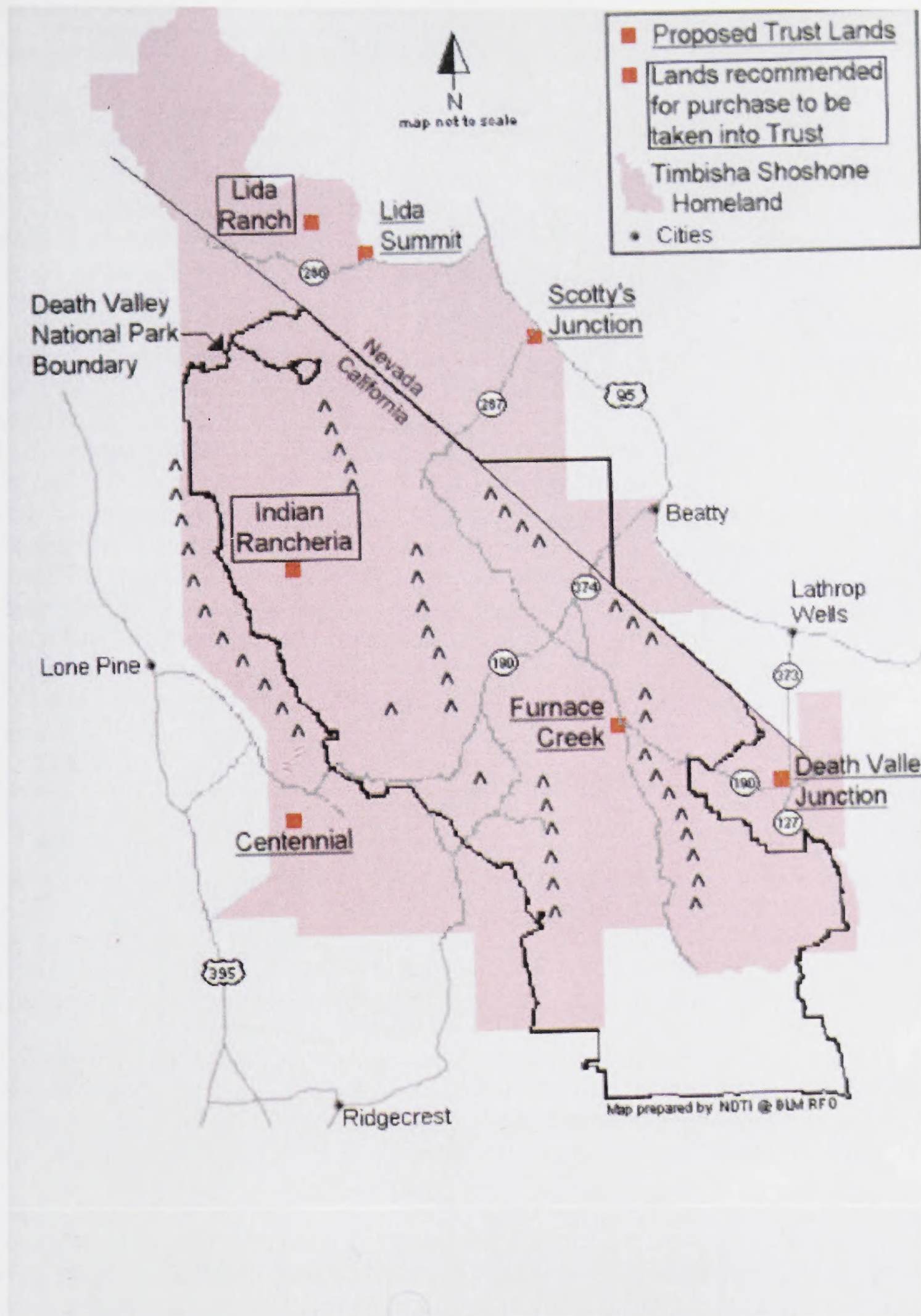


Park by the legislation enacting the recommendations in this report, the trust parcels outside the park will not be subject to the Indian Gaming Regulatory Act's general prohibition of gaming on lands acquired by the Secretary in trust after October 17, 1988.

The parcels outside the Park are to be taken into trust for the primary purposes of residential, agricultural, and economic development. While the Tribe has no current plans to use these lands for gaming, class II gaming, commonly known as bingo, can occur on the land parcels recommended to be taken into trust outside the Park under the Indian Gaming Regulatory Act if the state within which the land parcels are located permits such gaming and the Tribe has a gaming ordinance approved by the National Indian Gaming Commission. Class III gaming, commonly known as casino gaming, can occur on these parcels only if (1) class III gaming is permitted by the state, (2) the Tribe has a gaming ordinance approved by the National Indian Gaming Commission, and (3) the Tribe and the governor of the state within which the parcel is located successfully negotiate a gaming compact.

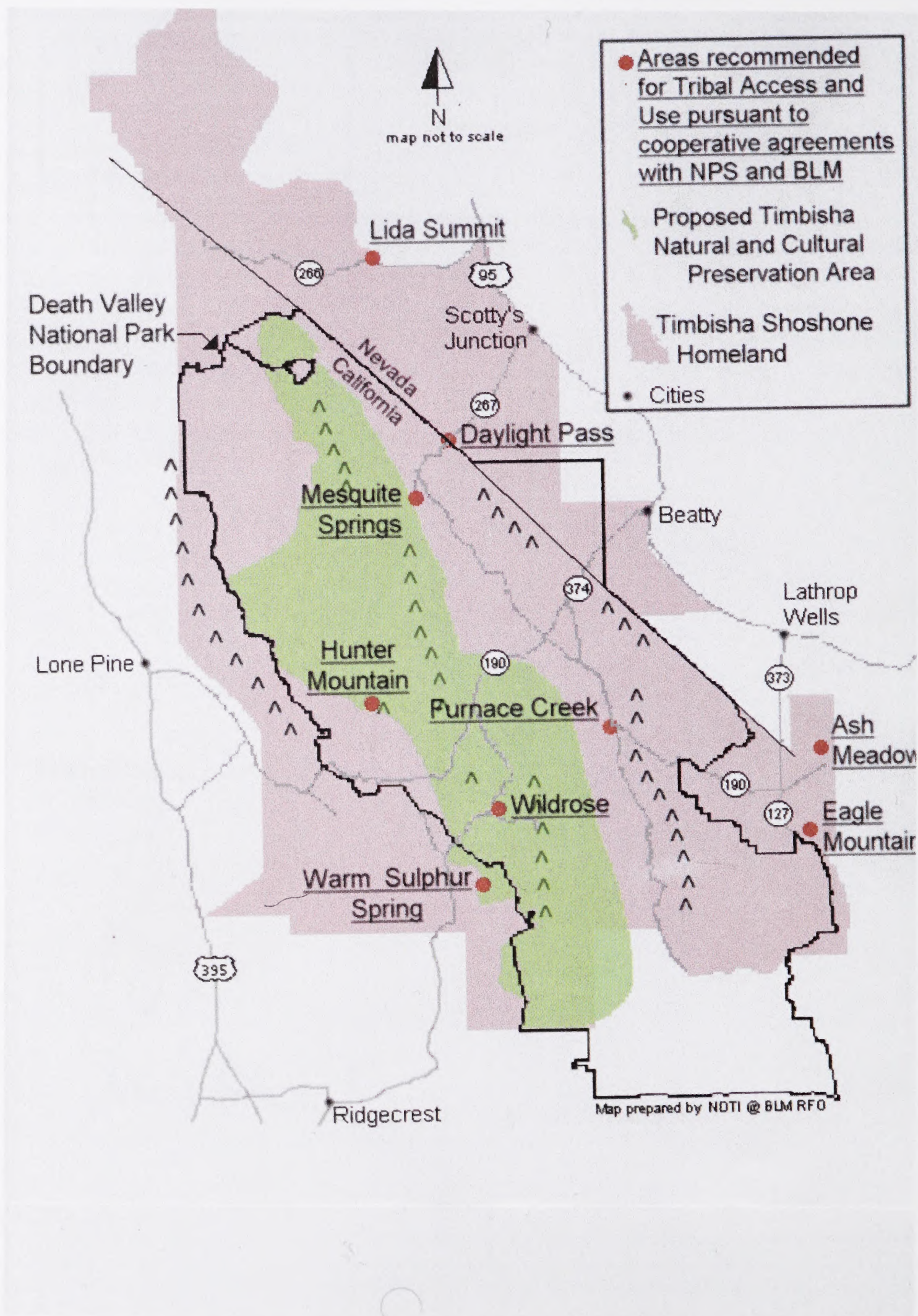
All of these areas are shown on Maps 2 and 3. Each is discussed in further detail in the sections that follow.





Map 2: Lands recommended to be transferred in trust to the Tribe





Map 3: Lands recommended for tribal uses pursuant to cooperative agreements with the National Park Service and the Bureau of Land Management



## **B. Furnace Creek, Death Valley National Park**

### **1. Suitability Analysis**

Furnace Creek is located on the valley floor of central Death Valley and encompasses the tribal village, the privately owned inholding containing the Furnace Creek Ranch and Furnace Creek Inn, the Park Visitor Center, Texas Springs Campground, and a small airport. The area is bordered on the west by a large alluvial fan of about 3,000 acres of mesquite groves of great importance to the Tribe and the Park.

The Furnace Creek area is the cultural, political, and geographic heart of Timbisha Shoshone ancestral lands. The Timbisha Shoshone people have never left it. The area contains sacred sites and tribal burials. The settlement at Furnace Creek is where the current tribal government was formed. It is the place where the Tribe wants to build homes for its people, tribal offices to carry on tribal governance and business, and to develop visitor-related services to provide income and employment opportunities for its people. The Tribe and the agencies recognize that development at Furnace Creek must be limited and that additional development needs must be met outside the Park. The following recommended actions are designed to establish a foundation for a viable, self-sufficient tribal community within the Park given existing resources, particularly, the availability and allocation of water. Furnace Creek is also the place where the Tribe wants to carry on its traditions, particularly those associated with caring for the mesquite groves, and interpreting them, as appropriate, to the public.

*Furnace Creek is the central place of our tribal culture. It is a reminder of the good days when our culture was still fully intact.*

*Furnace Creek is near the deposits of 'timbisha', the red mineral that gave its name to our people. The best mesquite groves are at Furnace Creek. The waters, which were always associated with happiness, spoke to the people and told them that they could be cleansed and healed. It is said that the original Old Ones came from Furnace Creek, and, carrying with them the knowledge about the waters, dispersed throughout the Homeland.*

*Furnace Creek has always been a traditional gathering place. I remember, as a little girl, when the people came in and did their dancing and singing. There was also a lot of laughing and traditional gaming. I remember, when I was young, moving up from Furnace Creek into the Panamints with pack mules and horses for the summer months. Pauline Esteves*

The tribal village area at Furnace Creek meets the suitability criteria developed by the negotiating team for land to be taken into trust. Tribal historical, cultural, traditional, and residential uses are well documented; the area is central to the future of the Tribe. Of all the parcels recommended to be taken into trust for the Tribe, Furnace Creek offers the most potential for cooperative activities to support and expand Park purposes, values, and needs. Furnace Creek provides the greatest potential for environmentally sensitive, sustainable, visitor-related, tribal development. The inholding at Furnace Creek has served the needs of visitors since the 1920s, before the Park was established. Roads, power lines, water (as described below) and other public services are available at Furnace Creek.



The tribal development described below will continue that historical tradition in the context of Timbisha culture and history. The contributions of the Timbisha Shoshone to the environment of the Park have never been fully appreciated or interpreted to the public. Under this plan, the Tribe, in cooperation with the Park, will provide visitors with a richer appreciation of the desert landscape of Death Valley, and how the Timbisha live as part of it, as they have for thousands of years.

The availability and allocation of water was a significant criteria in the suitability analysis. Water sources at Furnace Creek are Texas Spring, Travertine Springs and several undeveloped springs. Reliable, current information exists on existing and potential water use by the National Park Service, AmFac and the Tribe which was developed by the National Park Service and the Bureau of Reclamation in 1998 and 1999.<sup>9</sup> That information indicates that water exists in adequate amounts but that unforeseen natural events may cause a temporary reduction in availability. The National Park Service and AmFac currently have a memorandum of understanding that guides cooperative action during these periods. The Tribe and the National Park Service will develop a similar agreement. In addition, all water users at Furnace Creek will jointly develop a water conservation strategy.

Current water use by the Tribe is approximately 40 acre feet per year. If development occurs as expected under the proposed plan, total water use is estimated to be approximately 92 acre feet per year. Because the proposed development will replace an antiquated, leaky and inefficient water system serving the Tribe, the proposed development will have a negligible impact on the total amount of water available at Furnace Creek.

## **2. Land Uses at Furnace Creek**

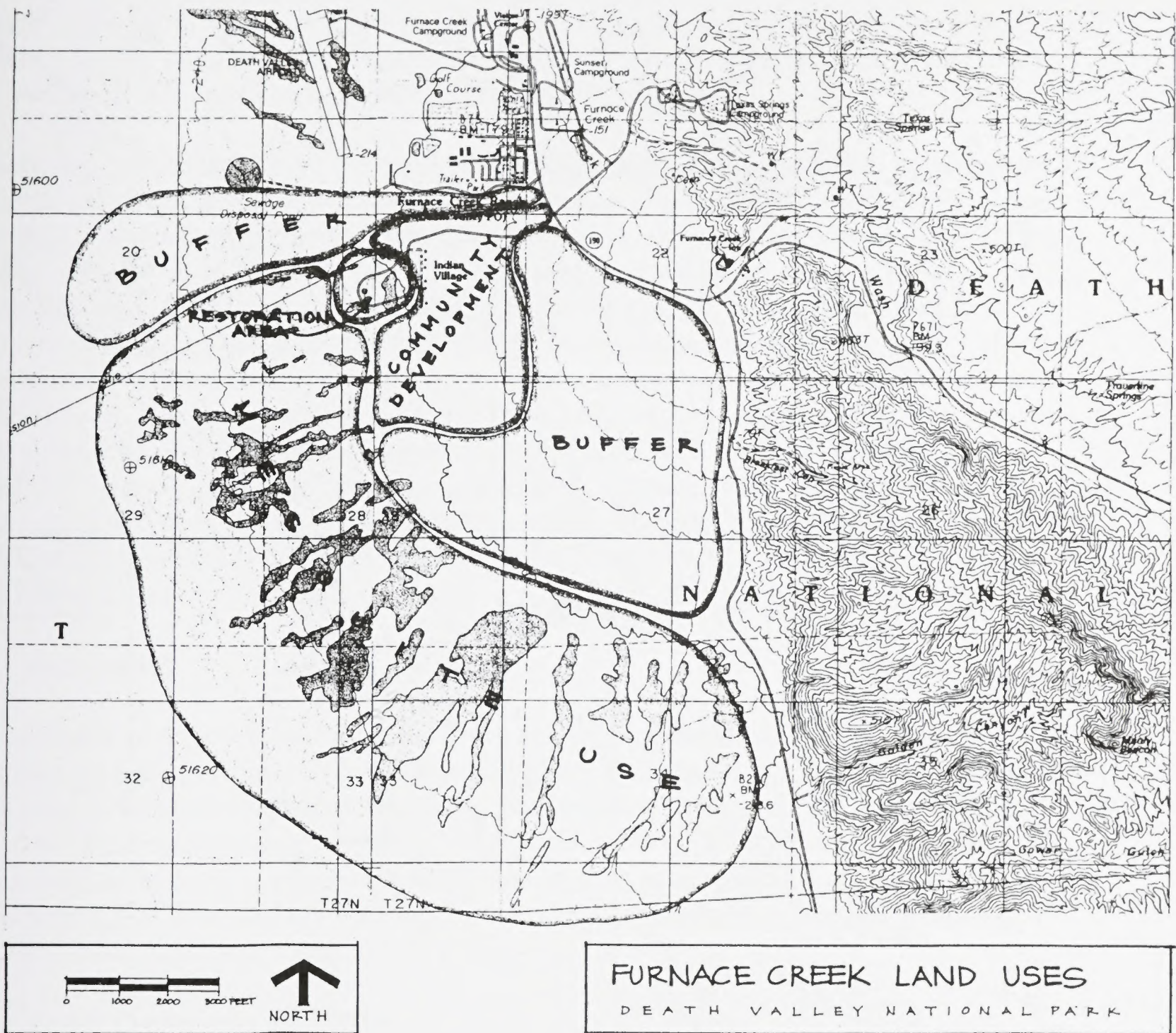
Proposed tribal land uses at Furnace Creek are shown on Map 4. The map identifies four uses: community development, mesquite use, buffer, and restoration. A conceptual sketch of proposed tribal development is shown on Illustration 4.

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<sup>9</sup> Bellinger, Thomas R., *Estimated Present and Future Water Use for the Timbisha Shoshone Tribe, Furnace Creek Indian Village, Death Valley National Park, CA*, Bureau of Reclamation, Denver Service Center, Denver, CO. January 1999



# TIMBISHA LANDS STUDY



*Map 4: Furnace Creek in Death Valley National Park showing tribal use areas*



# TIMBISHA LANDS STUDY

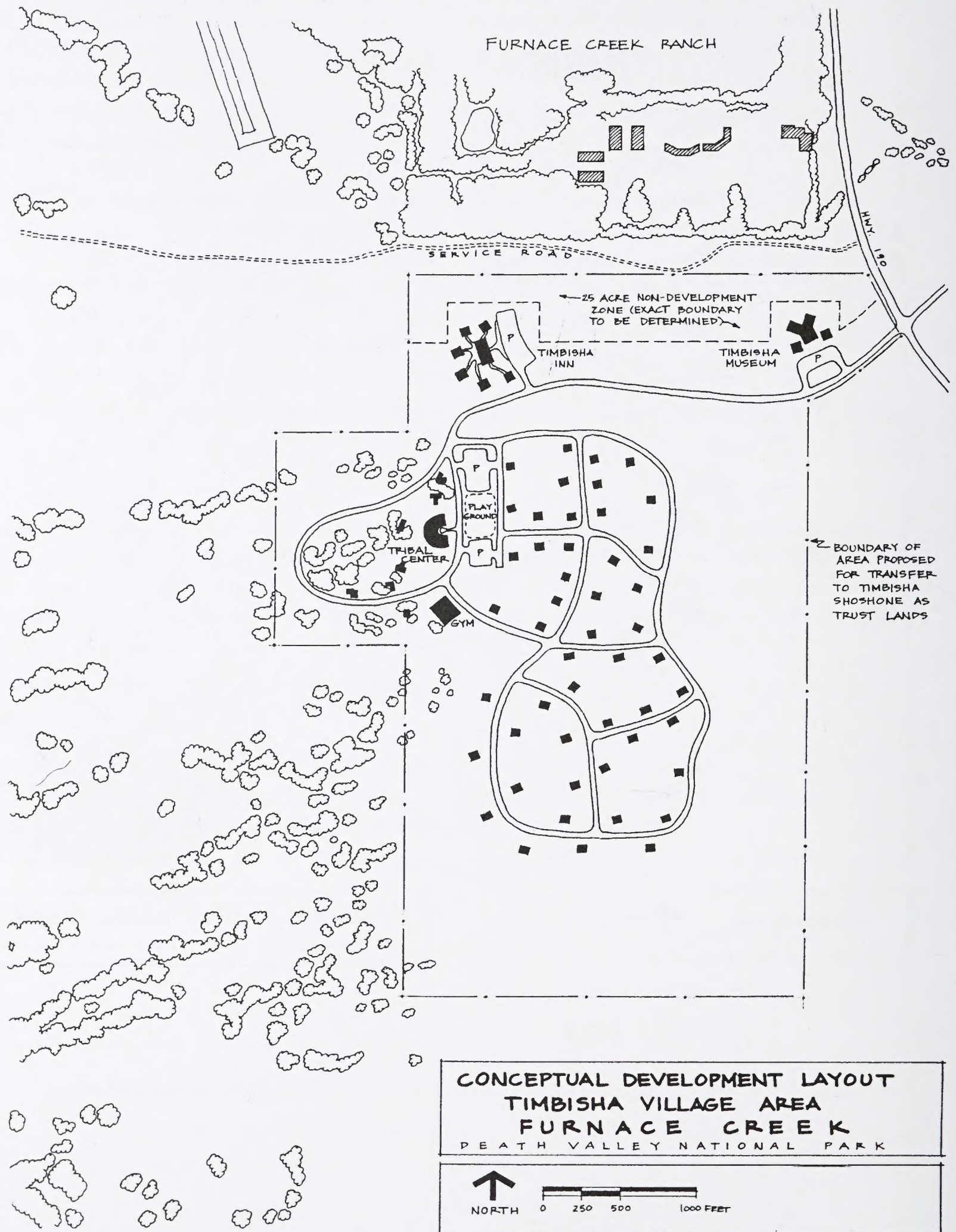


Illustration 4: Conceptual sketch of proposed tribal development at Furnace Creek, Death Valley National Park



### **a. Community Development at Furnace Creek**

The Tribe and the Park have agreed that any additional development at Furnace Creek is conditioned on the availability and allocation of water and by jointly established standards of size, impact and design. The parties have agreed to negotiate and adopt jointly agreed upon standards for the tribal trust parcel at Furnace Creek that will require consistency with tribal and Park values, needs, and purposes.

Both the Tribe and the Park are committed to the principle that residential and community development and economic development at Furnace Creek will be culturally appropriate, energy and water efficient, comfortable to live and work in, and compatible with Park and tribal values, needs and purposes. The Tribe and the Park are working together to identify ways to ensure that construction at the Timbisha village will be consistent with best practices in sustainable development. A sustainable design incorporating energy efficient technology will minimize pressures on existing infrastructure and facilities in the Furnace Creek area. The parties also believe that this approach may help strengthen public awareness of how communities can find a balance between the needs of living human cultures with concerns for environmental and resource protection even under extreme climatic conditions. The restoration and rehabilitation of the Timbisha village represents a rare and extraordinary opportunity for the Tribe and the Park to collaborate in the creation of a truly unique community.

#### ***Residential***

Housing is an urgent problem for the Tribe due to the substandard conditions of the current dwellings. The residential area provides a location for the Tribe to build homes for its people. With an established land base, the Tribe and tribal members are eligible for Federal housing assistance programs. The Tribe and the National Park Service are sensitive to the need to establish a maximum level of development at Furnace Creek. Therefore, the Tribe and the National Park Service have agreed to restrict the number of single family houses to a maximum of 50.

#### ***Tribal Community Facilities***

In addition to its severe housing needs, the Tribe has a pressing need for tribal government facilities. Presently, tribal operations are run out of two modular buildings both of which are too small to accommodate the General Council. Both buildings are aging rapidly under the harsh climatic conditions and are difficult and expensive to cool during the intensely hot summers. Other than these two small buildings, there are no other facilities available to the tribal membership for community activities other than a small outdoor arbor.

Development will include a tribal community center. The center will include space for tribal offices, recreation facilities, multi-purpose room and kitchen, senior and youth facilities, and other tribal needs.



## **b. Visitor-Related Non-Gaming Development**

Tribal economic needs and aspirations were critical considerations in the discussions related to establishing a permanent land base for the Tribe in the Park. The potential for visitor-related tribal economic development has been recognized by both the Tribe and the Park since the 1930's, and the negotiating team articulated this potential at a very early point in the negotiations (see Appendix C). Following from this understanding, the negotiating team recognizes that a carefully controlled and sustainably designed level of development by the Tribe can be consistent with Park purposes and values. In addition, collaboration between the Park and the Tribe on development projects through the application of jointly established standards of size, impact, and design, can result in development that is in keeping with the desert environment and reflective of Timbisha Shoshone tribal history and values. Such development can provide the visitor with a heretofore unavailable experience that only the Timbisha Shoshone Tribe, as the original residents of the Park, can offer. Accordingly, the expanded tribal village area at Furnace Creek provides an ideal location for visitor-related tribal economic activity capable of providing income and year-round employment opportunities for tribal members.

The anticipated development would include a small-to-moderate sized, upscale desert inn with a Timbisha theme, a cultural museum and gift shop, and tribally guided hikes, lectures, and tours. The desert inn would not duplicate existing overnight accommodations at Furnace Creek and would be sustainably designed to ensure compatibility with Park values and purposes. Gaming would be prohibited, as the Tribe and the National Park Service agree that gaming is inconsistent with tribal and Park purposes and values. The inn will promote energy efficiency, water conservation, and low impact, environmentally sustainable, operations. As conceived, the inn would be of sufficient scope to be economically viable and would provide important skilled and unskilled jobs and career development opportunities for tribal members.

The following illustration, while conceptual only, gives a sense of the scale of the inn and how it could reflect Timbisha themes and the natural setting.



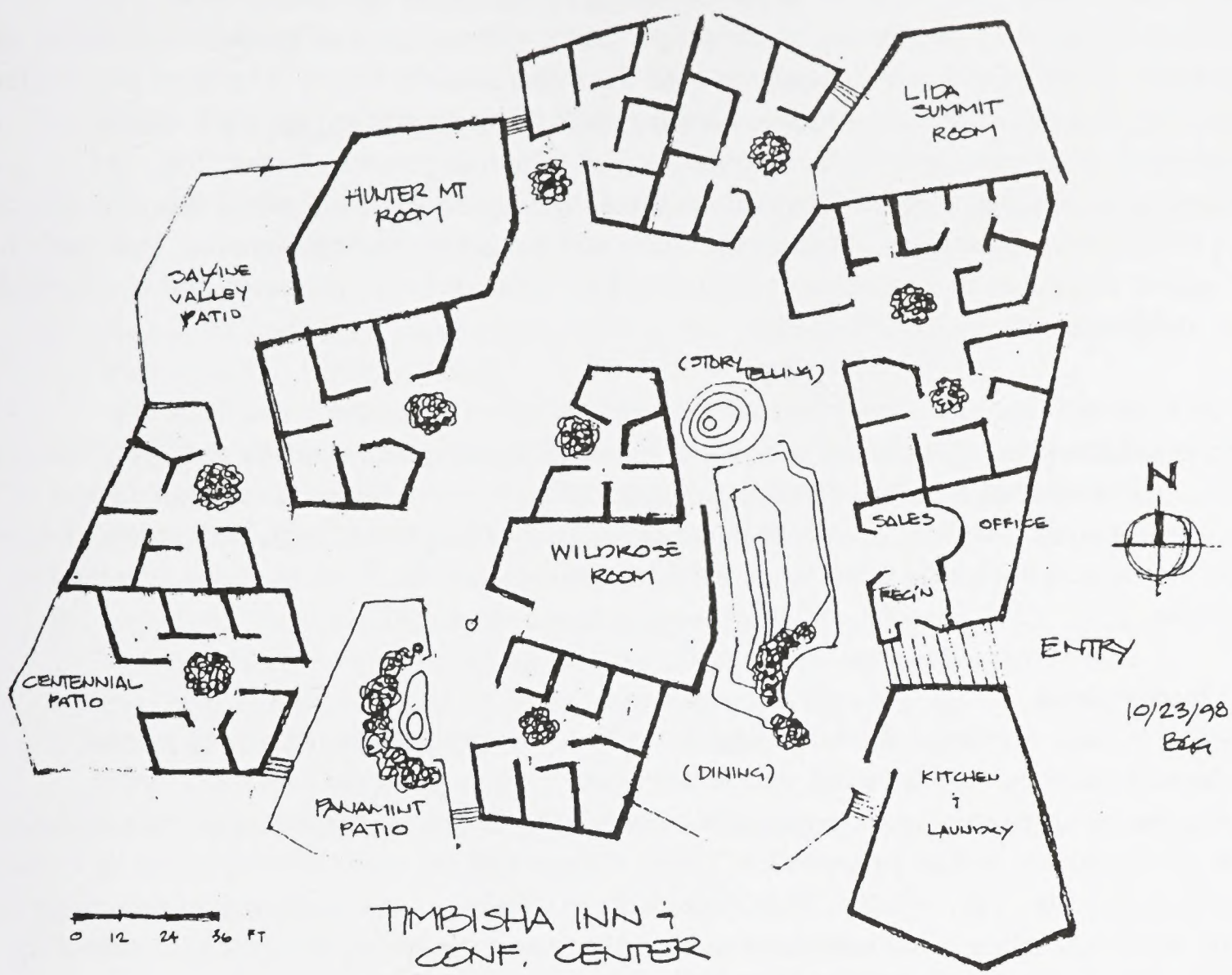


Illustration 5: Conceptual Sketch of the Timbisha Shoshone Desert Inn

### c. Mesquite Use Area, Buffer Area, and Restoration Area

#### *Mesquite Use Area*

In addition to being the main residential and governmental center for the Tribe, the Furnace Creek area is central to preserving tribal traditional knowledge of the land, plants, and medicines. From earliest times, the Timbisha Shoshone people encouraged plant growth and harvested foods from this area. The mesquite stands near the village served as a major food source for the Timbisha people as the beans were known to be the sweetest in the area. Collecting mesquite, and knowing how to process it properly is a matter of tribal pride, and the Timbisha want that knowledge to continue. Under this plan the Tribe will be free to carry on its traditional resource management practices, particularly those associated with caring for the mesquite groves. The Tribe will also have authority to interpret the site, as appropriate, for the visiting public.



The Tribe is very concerned about the declining health of the mesquites which they attribute in part to a decreasing water supply due to the numbers of invasive salt cedar, or tamarisk, in the groves which compete with the mesquites for water. The trees also suffer from the inability of the Timbisha to care for them to promote their health by using traditional plant management techniques such as thinning, pruning, harvesting, and removing excess sand. Activities such as these will be reintroduced under this plan subject to a cooperative agreement between the Tribe and the National Park Service. Restoration of natural resources in general is consistent with Tribal and Park purposes and is a suitable use of this area.

Visitor use will be restricted, pursuant to the cooperative agreement, but there is a presumption of some public use subject to the conditions agreed upon by the Tribe and the Park. The Tribe has expressed interest in conducting cultural hikes, lectures and tours of the mesquite groves. Activities such as these are not only compatible with Park values, but will offer a new and enriching experience for Park visitors that the Tribe is uniquely suited to provide.

### ***Buffer Area***

The buffer area separates the tribal area from Park visitors and also serves to protect archeological sites. It will be an area restricted to visitors pursuant to a cooperative management agreement to be negotiated between the Tribe and the National Park Service. Use of this area as buffer between the Tribal Village and the other developments at Furnace Creek is suitable as it separates Park visitors from tribal uses and activities unrelated to the Park, while affording tribal members some privacy and the ability to conduct community affairs without undue disruption from the public.

### ***Restoration Area***

The restoration area contains the historic adobe residences built in the 1930s. The Tribe wants to restore the adobes as part of their community development plans.

## **3. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing establishment of the Timbisha Shoshone Community Development and Adobe Restoration area (a 300 acre trust parcel including a 25 acre non-development zone at the north end of the parcel), for community, residential, historic restoration, and visitor-related economic development, including requirements for jointly agreed upon standards for development that would require consistency with tribal and Park values, needs, and purposes. The Tribe would be granted a right-of-way for ingress and egress on Highway 190.
- ◆ Legislation providing for reserved water rights for tribal trust lands at Furnace Creek effective on the date legislation becomes law.
- ◆ Legislation authorizing establishment of the Buffer and the Mesquite Management Areas of approximately 3,000 acres, including authorization for restricting visitor use in these areas.



## **b. Departmental Action**

- ◆ Complete transfer of land to the Tribe in trust upon legislative authorization.
- ◆ Expand and implement a water conservation strategy in cooperation with all water uses at Furnace Creek.
- ◆ Negotiate and adopt jointly agreed upon development standards for the tribal trust parcel at Furnace Creek.
- ◆ Negotiate and enter into a cooperative agreement between the Tribe and the National Park Service providing for traditional, ecologically sustainable, tribal practices within the Mesquite Use Area.
- ◆ Negotiate and enter into a cooperative agreement between the Tribe and the National Park Service for management of the adobe restoration area in an environmentally sensitive manner to preserve the historic adobes and remove invasive stands of salt cedar.

## **C. Timbisha Shoshone Natural and Cultural Preservation Area**

### **1. Suitability Analysis**

The area to be identified as the Timbisha Shoshone Natural and Cultural Preservation Area is located primarily within the central western part of Death Valley National Park, but also includes some land administered by the Bureau of Land Management and two privately owned parcels. It is a very large area of mountain ranges, valleys, springs, hot springs, and other water sources. It includes portions of the Nelson Range, the Saline Valley, and portions of the Panamint Mountains including Wildrose Canyon. More than 95% of this area is designated Wilderness. All existing statutes and regulations will remain fully in effect. The Timbisha Shoshone Natural and Cultural Preservation Area is shown on Map 3.

This area of land is of utmost importance to the Tribe for historical, cultural, and religious reasons. Tribal members have lived in this area seasonally for generations and many are buried here. The stories, legends and songs of the Timbisha people refer to these lands as the sacred center of the earth. Under the proposed framework, the Tribe will be free to visit and camp in this area as well as to engage in traditional practices pursuant to a joint management plan agreed to by the Tribe, the National Park Service, and the Bureau of Land Management which will be consistent with existing laws and regulations established for the management and stewardship of the Park.

The Tribe, the National Park Service, and the Bureau of Land Management see the designation of the Natural and Cultural Area as a way of recognizing the common interests of the agencies and the Tribe in conserving and protecting this area. Designating the area and authorizing traditional uses by the Tribe within it provides a strong foundation for



cooperative management activities.

The area is suitable for such designation because of the Tribe's strong historical relationship to the land and their historical and cultural uses of the area. The designation will take into account and complement existing land uses and special land use designations such as Wilderness, Critical Habitat, and Areas of Critical Environmental Concern.

*Wildrose is vital to our background and to who we are. Members were born there and died there. Laughter and tears filled the air with harmony. Everything was simple then. It was a beautiful place...a place with many memories. The mountain is sacred. When we go there we pray for acceptance and to be worthy to take pine-nuts, tea, bighorn sheep or deer from the mountain. Like a church, it is a sacred place. You give thanks for what the mountain can provide. It has a spirit, and if you don't go in humble and ask for acceptance, danger can come in many forms. It is to be respected and not taken lightly. Barbara Durham*

While traditional practices, particularly with regard to plant management and use, have been studied by ethnobotanists and other anthropologists, many of these activities have not been widely practiced for many years. The Tribe, National Park Service and Bureau of Land Management and are interested in studying the effects of traditional Timbisha natural resource management in this area. It is anticipated that the agencies and the Tribe will work together to restore the integrity of the springs and enhance the wildlife and vegetation with positive environmental effects.

#### **a. Hunter Mountain**

Hunter Mountain is located in the Nelson Range in the west central part of the Park. This mountainous area, reaching over 7,400 feet in elevation, is an important lambing area for bighorn mountain sheep. It was a valuable hunting area for sheep and deer until it was included within the boundaries of the Park. Hunter Mountain contains many sources of water and tribal members know of more than a hundred springs and creeks located there. There are pinon camps and summer living areas on Hunter Mountain where tribal members had cultivated gardens of melons, beans and corn. Many plants used by the Tribe for medicinal purposes grow on Hunter Mountain.

The area is suitable for special tribal uses like traditional use camps because of the strong historical relationship of the Tribe to the area and their historical and cultural use of the area. Ground and surface water sources are available in sufficient quality and quantity to support traditional use camps. Water sources at Hunter Mountain are particularly significant to the Tribe as spiritual beings reside there who influence the well being of the land and the Timbisha people. Anticipated traditional uses include seasonal camping, harvesting of pinon nuts and plants for medicinal purposes but not the taking of wildlife in the park.

#### **b. Saline Valley Springs and the Indian Rancheria in Saline Valley**

Saline Valley Springs are located in the Saline Valley in the northwestern part of Death Valley National Park. The hot springs are very important to the Tribe and were used for healing and medicinal and spiritual purposes. The Tribe no longer uses the springs



because current visitor use is incompatible with the Tribal values associated with the springs.

This area is suitable for special tribal uses because of the historic and cultural use of the area and the historical relationship of the Tribe to the area. The Tribe and the National Park Service want to establish a greater tribal presence at the springs and will develop and conduct a pilot demonstration project regarding management of the springs.

Historically, there were three tribal winter villages near the springs. West of the warm springs and at the edge of the Park, are also two privately owned parcels of 80 and 40 acres, known as the Indian Rancheria, that were once homestead allotments to tribal members around the turn of the century. These parcels, once owned by Timbisha families, are historically very important to the Tribe. This report recommends legislative authorization for the purchase of these parcels to be held in trust for the Tribe.

#### **c. Wildrose**

Wildrose Canyon is located in the west central part of Death Valley National Park at an elevation of about 4,500 feet. Wildrose was an important pinon gathering area and the site of established summer and winter camps used by tribal members from Panamint Valley, Saline Valley, Hunter Mountain, Beatty, as well as Furnace Creek. Until the 1940s, several families from Furnace Creek used Wildrose as their summer-to-fall camp, coming here each June after the mesquite harvest and staying through the fall for the pinon nut harvest.

The Tribe wants to re-establish a tribal presence at Wildrose. This report recommends a tribal resource management field office, garage, and storage area, all within the area of the existing ranger station, and for traditional use camps at locations to be agreed to by the Tribe and the Park. Anticipated traditional uses include seasonal camping, harvesting of pinon nuts and plants for medicinal purposes but not the taking of wildlife in the park. These uses are suitable given the tribal historical and cultural uses of the area. Water is sufficient for the field office at Wildrose. Anticipated traditional uses include seasonal camping, harvesting of pinon nuts and plants for medicinal purposes, but not the taking of wildlife in the Park.

#### **d. Mesquite Springs and Daylight Pass**

Mesquite Springs is located in northeastern part of the Park. It was a winter village site and was important for waterfowl, food plants, and mesquite. Daylight Pass, is on a main route into the Park from the northeast from the town of Beatty, Nevada. The pass is more than 4,000 feet in elevation, and provides spectacular views of Death Valley. Not surprisingly, Daylight Pass was the route tribal members from the Beatty area used to enter Death Valley to collect pinon nuts or salt. The Pass was, and continues to be, valued for the food greens that grew along the trail. A regular overnight camp was located along the route near Hole-in-Rock Spring. The Tribe is interested in low-impact economic development, perhaps an information booth, at either Daylight Pass or Mesquite Springs.



Restoration of natural and biological resources is consistent with the purposes and values of the Park and the Tribe, and is suitable in these locations. Small business opportunities may be available pursuant to business permits at Daylight Pass and Mesquite Springs. Such visitor related services are suitable in the Park.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing designation of the Timbisha Shoshone Natural and Cultural Preservation Area for low impact, ecologically sustainable, traditional practices, uses and activities by the Timbisha Shoshone Tribe pursuant to a jointly established management plan agreed upon by the Tribe, the National Park Service, and the Bureau of Land Management
- ◆ Legislation authorizing and directing the establishment and maintenance, in perpetuity, of a tribal resource management field office, garage and storage area at Wildrose, all in the vicinity of the existing ranger station, and for traditional use camps at Wildrose and Hunter Mountain in locations agreed to by the Tribe and the National Park Service.
- ◆ Legislation authorizing funds for the acquisition of the Indian rancheria site in the Saline Valley to be transferred to the Tribe to be held in trust.

### **b. Departmental Action**

- ◆ Negotiate and enter into a joint management plan agreed upon by the Tribe, the National Park Service and the Bureau of Land Management. The joint management plan will include provisions for tribal facilities at Wildrose and for traditional camps at Wildrose and Hunter Mountain, two areas of special significance to the Tribe.
- ◆ Delineate the area on all future National Park Service maps.
- ◆ Develop and conduct a joint tribal-National Park Service pilot demonstration project regarding management of the Saline Valley Springs.
- ◆ Complete transfer of rancheria to the Tribe in trust upon legislative authorization, appropriation, and purchase.
- ◆ Negotiate and enter into a cooperative agreement between the Tribe and the National Park Service ensuring tribal access and use of the Mesquite Springs, Daylight Pass, and Travertine Springs and to allow the Tribe to participate in resource protection in the area.



## **D. Death Valley Junction, California**

### **1. Suitability Analysis**

Death Valley Junction is located in Inyo County, California, at about 2,000 feet in elevation in open saltbush scrub habitat. The parcel lies on the eastern edge of an alluvial fan sloping gently to the east. It is at the junction of highways 127 and 190, the latter being a main entrance road into the Park. The parcel, shown on Map 5, will be used for economic development and residences. The parcel is suitable to be taken into trust based on the historical tribal relationship to the land, the availability of water and infrastructure, the potential for housing and economic development, and the absence of significant encumbrances.

Tribal members traveled through what is now Death Valley Junction on their way to camps, residences, and gardens near the springs at Ash Meadows National Wildlife Refuge.

The Death Valley Junction area is primarily served by ground water. The water quality in the area is marginal for household use and would require treatment. It is estimated that between 10-to-20 acre feet could be withdrawn from this area with only a localized effect. This amount could supply several residences and small businesses. State water authorities will be consulted in determining issues of water allocation and season of use.







The Death Valley Junction parcel was located to avoid a section of state land, and is bounded on the east by private land. The parcel contains no mining claims and is within the Chicago Valley Wild Horse Herd Management Area. The California Desert Conservation Area Plan of 1980 prescribes that this parcel should be retained by the Bureau of Land Management. However, the Bureau of Land Management believes, based on its analysis of current uses, land designations, resource values, and effects that this parcel is suitable for legislative transfer to the Timbisha Shoshone Tribe.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing the transfer of approximately 1,000 acres of land from the Bureau of Land Management to the Tribe to be held in trust.

### **b. Departmental Action**

- ◆ Complete transfer of land to the Tribe in trust upon legislative authorization.

## **E. Centennial, California**

### **1. Suitability Analysis**

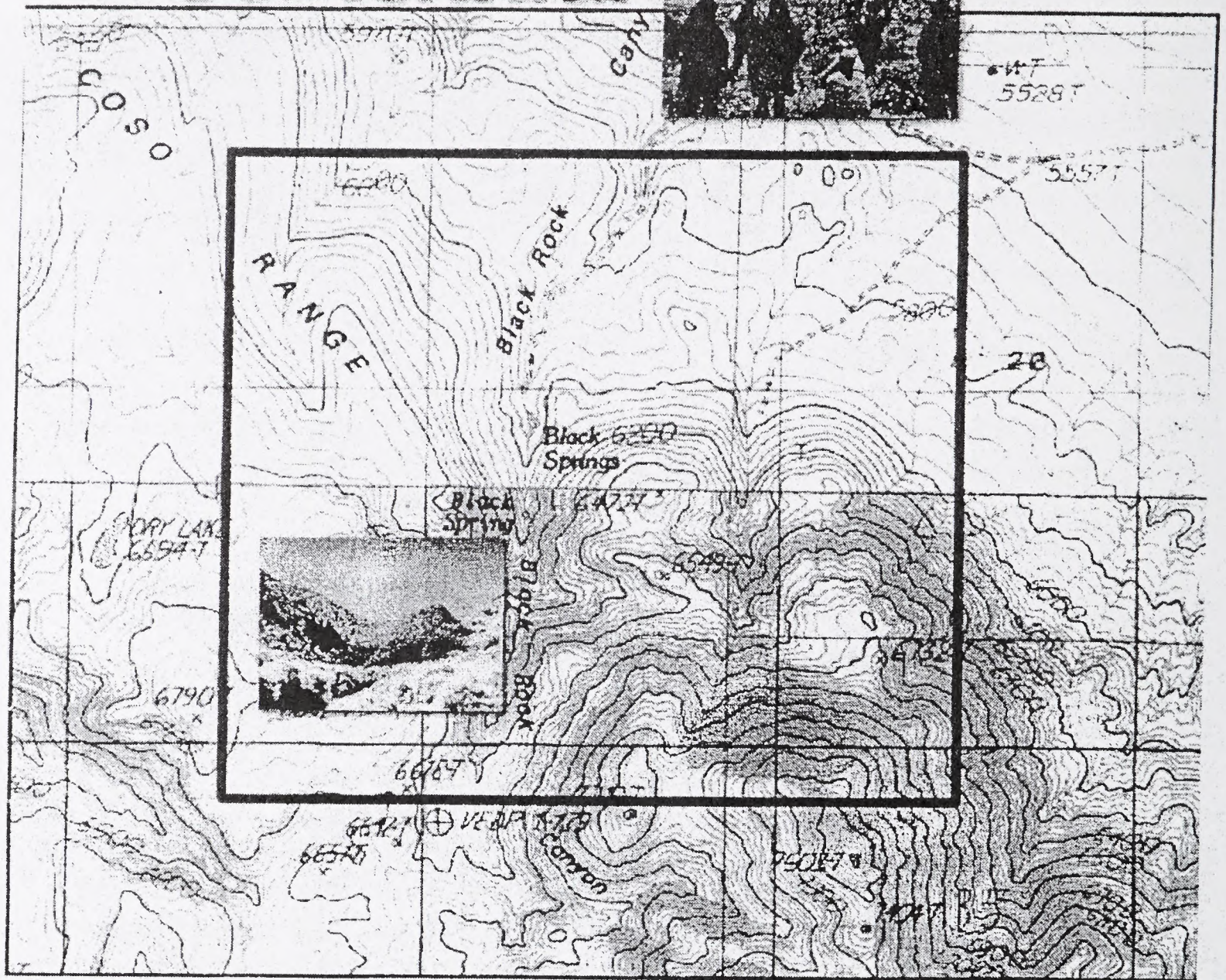
This parcel, shown on Map 6, is located in Inyo County, California, west of the Park at 4,000 to 5,000 feet in elevation. It is part of the Centennial bowl which is ringed on three sides by desert mountains. The parcel contains creosote bush and Joshua tree woodland. Highway 190 runs to the north and China Lake Naval Air Weapons Station lies to the south. The land parcel will be used for residences and small scale economic development.

Centennial is an important location at the western edge of the Tribe's ancestral lands in view of Hunter Mountain, a sacred site and traditional hunting and camping area. A sacred relationship exists between Hunter Mountain and the valley floors below. The area was used for both summer and winter camps, and is documented as a place where tribal members conducted communal rabbit and antelope hunts and gathered basketry materials.

The parcel is suitable to be taken into trust based on the historical tribal relationship to the land, the potential availability of water and infrastructure, the potential for housing and economic development, and the absence of significant encumbrances.



# Centennial



Map 6: Land at Centennial, California, recommended to be transferred to the Tribe in trust.



The Centennial parcel was located to avoid state land, mining claims, a Bureau of Land Management Wilderness area, and a withdrawal for the protection of watershed important to the City of Los Angeles. The parcel is within a cattle grazing allotment and within the Centennial Wild Horse Herd Management Area.

Local water supplies consist of ground and surface water. A potential source of surface water is Lower Centennial Spring and Black Rock Spring. Water right holdings exist on both springs totaling 2.97 acft./year. If a portion or all of these rights could be acquired, several residences with small gardens could be developed. The water quality may be marginal and could require treatment for home use. Ground water resources in the area are generally not well known. State water authorities would be consulted in determining issues of water allocation and season of use. A cooperative effort of the Bureau of Reclamation, Bureau of Indian Affairs, and the Bureau of Land Management is underway to sink an exploratory well in the area to better determine the viability of the Centennial parcel for the Tribe's intended use. This work is expected to be completed within the next several months.

The Bureau of Land Management supports a transfer of a parcel into trust in the Centennial area if an adequate source of groundwater is found to support the Tribe's proposal to locate a limited number of residences there. The California Desert Conservation Area Plan identifies this parcel to be retained by the Bureau of Land Management. However, the Bureau of Land Management believes pending the results of the exploratory drilling, and based on its analysis of current uses, land designations, resource values and effects, that this parcel is suitable for legislative transfer to the Timbisha Shoshone Tribe.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing transfer of approximately 640 acres, one section in size, in trust to the Tribe in the area of Black Rock Springs.
- ◆ Legislation for authorization and appropriation for potential purchase of private surface water rights.

### **b. Departmental Action**

- ◆ Complete transfer of land to the Tribe in trust upon legislative authorization.

## **F. Eagle Mountain and Warm Sulphur Springs, California**

### **1. Suitability Analysis**

Eagle mountain is a prominent limestone massif rising several hundred feet from the valley floor. Situated five miles southeast of Death Valley Junction, Eagle Mountain contains a



variety of vegetative communities. It is bounded on the west by Highway 127 and is adjacent to the Amargosa River drainage. Warm Sulphur Springs is located below 2,000 feet in elevation in the Panamint Valley. It has been designated an Area of Critical Concern to protect the desert marsh habitat which includes the marsh and the surrounding mesquite bosques.

These areas, shown on Map 3, are within the tribal ancestral homelands and are important to the Tribe as they contains sacred sites, springs, and mesquite groves. The Tribe would like to enter into a cooperative agreement with the Bureau of Land Management to allow tribal access and use of the area, and to allow the Tribe to participate in resource protection, particularly with regard to Warm Sulphur Springs. The Bureau of Land Management is interested in working with the Tribe to restore the Springs to its proper functioning condition.

This kind of cooperative land use is suitable in these areas because of the historical tribal relationship to the area and because the Tribe and the Bureau of Land Management share mutual interests in protecting and conserving these lands.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ None required

### **b. Departmental Action**

- ◆ Negotiate and enter into a cooperative agreement between the Tribe and the Bureau of Land Management to ensure Tribal access and use of these areas and to allow the Tribe to participate in resource protection.

## **G. Scotty's Junction, Nevada**

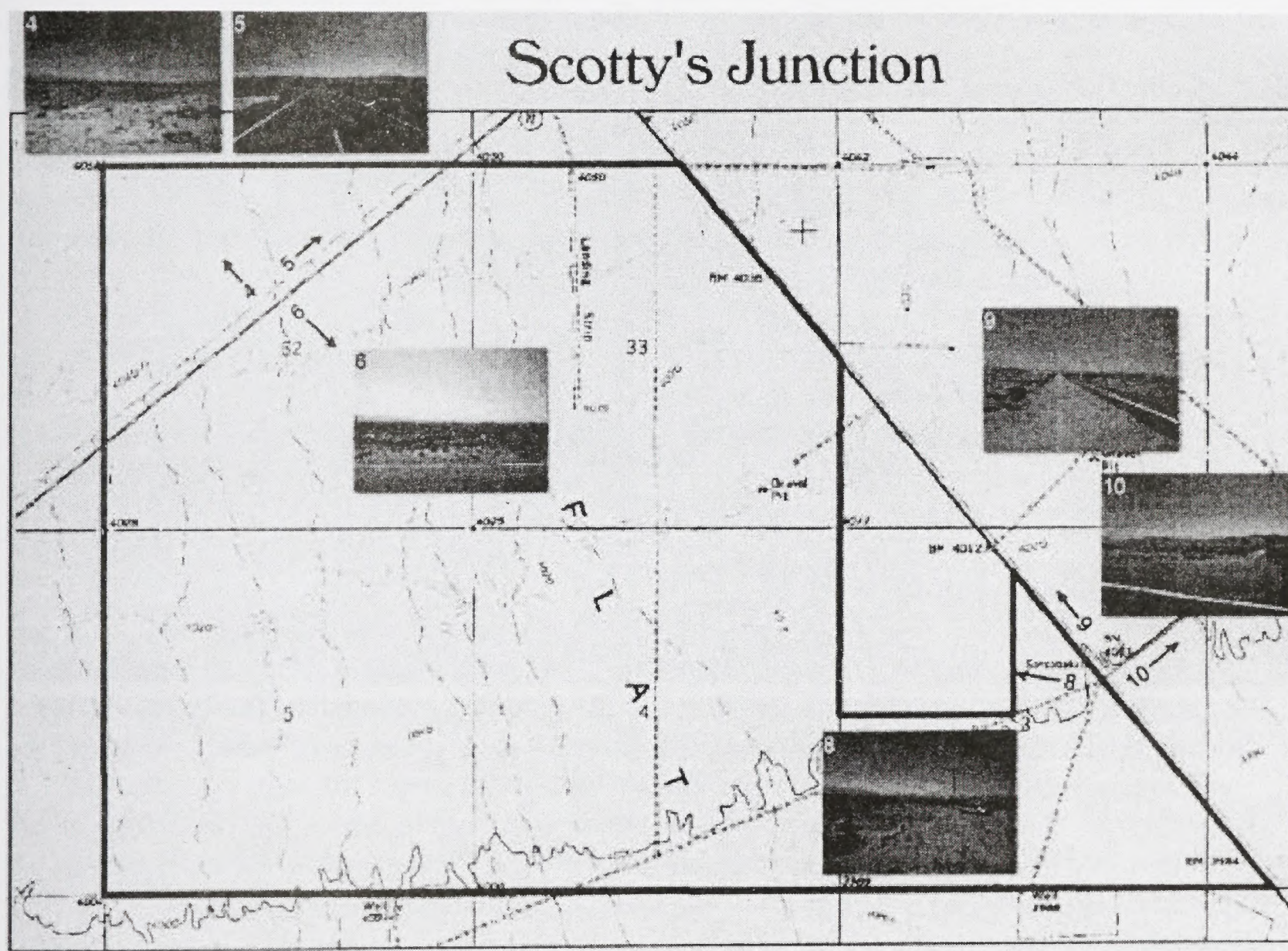
### **1. Suitability Analysis**

Scotty's Junction is located east of the Park in Nye County, Nevada, on the junction of Highways 95 and 267 which is the access road to northern Death Valley. The land parcel, shown on Map 7, begins west of Highway 95. It is in the Sarcobatus Flat valley bottom, and the terrain is relatively flat with low lying hot desert shrubs. There are no mining claims on the parcel. This land will be used for residences and economic development.

The parcel is suitable to be taken into trust based on the historical tribal relationship to the land, the potential availability of water and infrastructure, the potential for housing and economic development, and the absence of significant encumbrances. The area is currently listed as available for disposal in the Bureau of Land Management resource management plan.

This area is within the Tribe's Homeland and several tribal families lived there. Tribal members hunted for bighorn sheep until the 1940's and the area contains important lambing areas. Deer were also hunted.





Map 7: Land at Scotty's Junction, Nevada, recommended to be transferred to the Tribe in trust.



Scotty's Junction is supplied only by ground water. The ground water in the area is contained in a valley fill aquifer 200 to 300 feet below the surface. The annual yield in the valley in which Scotty's Junction is located is about 3,000 acre feet with an annual discharge of about 5 acre feet per acre. Current water use in the area is between 1,200 and 2,000 acre feet. This leaves approximately 1,000 acre feet per year available on a valley-wide basis.

It is estimated that there is enough water to support several residences and small businesses. Agricultural use would further limit available water for other purposes.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing the transfer of approximately 2,800 acres from the Bureau of Land Management to the Tribe to be held in trust.

### **b. Departmental Action**

- ◆ Complete transfer of land to the Tribe in trust upon legislative authorization.

## **H. Lida, Nevada --Tribal Community Parcel**

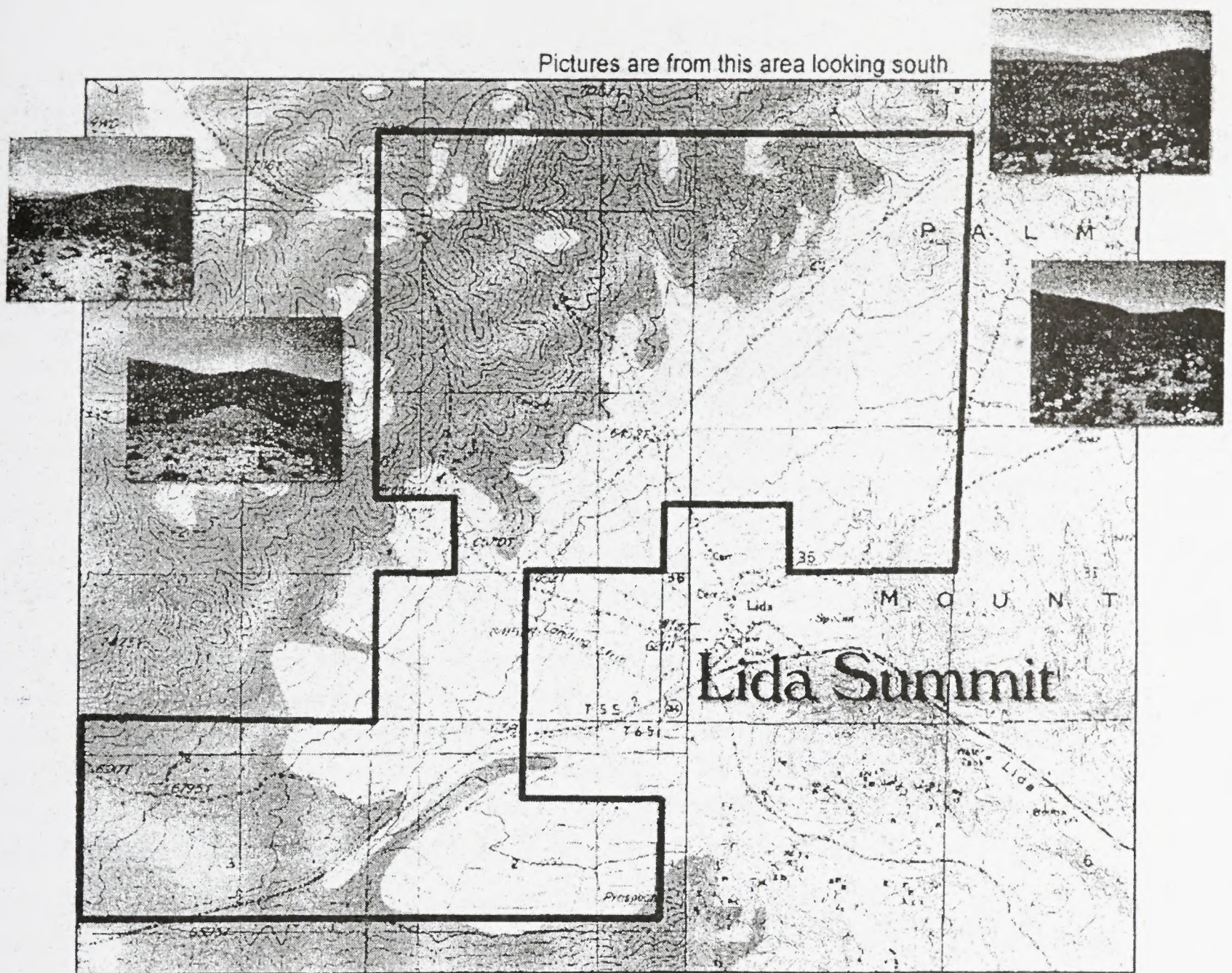
### **1. Suitability Analysis**

This parcel, shown on Map 8, is located north of Death Valley National Park in Esmeralda County, Nevada and lies on the eastern slope of the Palmetto Mountains. The terrain varies from gradual to steep and rugged slopes. The parcel is at the interface of the hot desert shrub and pinon-juniper vegetation communities with about a equal mixture of each. The parcel is adjacent to the historic town of Lida which continues to have a few residents. Activities in the area include modest ranching and mining. The parcel is within a grazing allotment. However, the grazing permit has expired. Public utilities are limited to electricity.

This area has been used continuously by the Tribe since at least the early 19th century, and continues to be used for hunting, harvesting pine nuts, and ceremonies. At least five traditional villages were located in this area which is also the birthplace and burial area of relatives and ancestors. There are at least four springs known to tribal members who in the past had gardens and raised cattle in the area.

This area is suitable to be taken into trust because of the continuous tribal historical relationship to the area and the unbroken pattern of residential and cultural use. The Bureau of Land Management resource management plan identifies this parcel as suitable for disposal.





Map 8: Land at Lida, Nevada, recommended to be transferred to the Tribe in trust.



This land will be used for residences and for economic development. Ground water is potentially available. Legislation is requested for authorization and appropriation for purchase of surface water rights. The Lida area is supplied by both surface and ground water. Surface supplies consist of several springs and the ground water is supplied by an alluvial fill aquifer primarily recharged by local precipitation. Annual recharge in the area is estimated to be 150 acft/year. However, local yield may only amount to about 30 acft/year. Water quality is generally good. It is estimated that there is enough water to supply several residences and small businesses.

*The Lida area is very important to the Tribe. The significance is in the sacredness of the Mountain itself and the surrounding area. Families still gather for ceremony, prayers, and to give thanks for life. Members of the Tribe lived in the area and worked in the mines. Certain areas are known for a family that used to live there. Members were buried at a burial site in Lida. Today, members still visit the area to harvest pinon nuts, gather medicinal plants, and to hunt game. Barbara Durham*

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing the transfer of approximately 2,800 acres in trust to the Tribe.

### **b. Departmental Action**

- ◆ Complete transfer of land to the Tribe in trust upon legislative authorization

## **I. Lida, Nevada --Tribal Use Area**

### **1. Suitability Analysis**

This area covers a large part of the Palmetto Mountains and consists largely of mixed pinon and juniper stands. Surface water include numerous springs and streams which vary from intermittent to perennial. Macgruder Mountain, which anchors the southern portion of the area, is a well used recreational area and also supports mining and ranching. Hunting for upland game birds, deer, and mountain lions is a popular activity, as is harvesting firewood and cutting Christmas trees.

This area, shown on Map 3, is within the Tribe's ancestral lands and is important to the Tribe as it contains burials, springs, lambing areas and pinon. The Tribe would like to enter into a cooperative management agreement with the Bureau of Land Management to ensure tribal access and use of the area and to allow the Tribe to participate in resource protection in the area. Examples of resource protection activities include clearing springs to make water more available to wildlife, educating non-tribal pinon nut collectors about how to harvests pine nuts without damaging pinon pine trees, protection of burial sites, and developing a cooperative pinon pine management plan with the Bureau of Land Management.



## **2. Recommended Action**

### **a. Legislative Action**

- ◆ None needed

### **b. Departmental Action**

- ◆ Negotiate and enter into a cooperative agreement between the Tribe and the Bureau of Land Management ensuring tribal access and use of the area and to allow the Tribe to participate in resource protection activities in the area.

## **J. Lida Ranch, Lida, Nevada**

### **1. Suitability Analysis**

The Lida Ranch was originally developed by a Timbisha family who gardened and grew hay for their horses and cattle. There was ample water in springs nearby where other Timbisha families lived. The springs were an important site for tribal gatherings related to ceremonial activities before and after the pine nut harvest. The Timbisha feel that they were unjustly driven from this area by non-Indian settlers and that the area is really theirs historically and culturally despite its current ownership.

*We believe that the land and water are really ours. It is the Tribe's wish to protect this area, particularly the quality of water and the burial sites of our people. The springs have been polluted from waste that the mines have allowed to flow into the springs. Water is very important for the migration of birds and wildlife. Barbara Durham*

It is also an area critical to the future of the Tribe as it has the most potential for tribal residences and economic development outside Furnace Creek in the Park. Purchase of the Ranch for the Tribe will relieve the pressure for additional development in the Park and provide economic development opportunities for the tribe outside the context of the Park which is solely focussed on conservation and visitor services.

*We look at the Lida area for its potential for residences and economic development. The Lida Ranch is another site in addition to Furnace Creek for homes and businesses, relieving pressure on the Park. This is an alternative to being in the Park. Pauline Esteves*

This land, shown on Map 9, will be used for residences, agriculture, and perhaps a tribal retreat.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation authorizing the purchase of the 2,430 acre Lida Ranch to be taken into trust for the Tribe and purchase of appurtenant water rights for the Tribe.



## **b. Departmental Action**

- ◆ Complete transfer of land to the Tribe in trust upon legislative authorization, appropriation, and purchase.

## **K. Ash Meadows National Wildlife Refuge, Nevada -- Cooperative Activities**

### **1. Suitability Analysis**

Ash Meadows National Wildlife Refuge, established in 1987, is located slightly north of the California - Nevada border off Highway 373. This desert oasis has a great diversity of species and is critically important to several endangered species, including the Ash Meadows pup fish.

The Ash Meadows area serves as the main discharge point for the underlying carbonate rock aquifer lying to the northeast. Approximately 30 springs discharge in the area supplying Ash Meadows National Wildlife Refuge and Devils Hole pool which is part of Death Valley National Park. A court-mandated pool level must be maintained in Devils Hole. It is recommended that no water development take place in this area due to the potential impact on flow to the local springs, the Refuge, and to the pool level at Devils Hole.

This area, shown on Map 3, is within the Tribe's ancestral lands and is important to the Tribe as it contains burials, springs, and was the site of several villages and was an important gardening area. The Tribe would like to enter into a cooperative management agreement or other agreement with the Fish and Wildlife Service to ensure tribal access and compatible use of the area and to allow the Tribe to participate in cultural resource protection in the area.

### **2. Recommended Action**

#### **a. Legislative Action**

- ◆ None needed

#### **b. Departmental Action**

- ◆ Negotiate and enter into a cooperative management agreement between the Tribe and the Fish and Wildlife Service to ensure tribal access and use of the area and to allow the Tribe to participate in resource protection in the area.

## **L. Other Agreements and Special Arrangements**

### **1. Suitability Analysis**

The recommended actions described in this section complement and reinforce the



recommendations in other sections relating to an increased tribal presence in its ancestral homeland. All are suitable activities as they support the recognition of tribal contributions to the history, ecology, and culture of the region, tribal employment in the Park, and funding support for Park-related tribal cultural enhancement projects.

## **2. Recommended Action**

### **a. Legislative Action**

- ◆ Legislation amending the purposes section of the Death Valley National Park enabling legislation to: (a) recognize the contributions of the Timbisha Shoshone Tribe to the history, ecology, and culture of Death Valley National Park and other portions of their ancestral homelands; (b) recognize that the continued presence of the Tribe in the Park and other parts of its ancestral homelands benefits the Park and the American people; and, (c) specify that traditional use of the Park by the Tribe is an official Park purpose.
- ◆ Legislation authorizing preferential hiring for tribal members in the Park.

### **b. Departmental Action**

- ◆ Authorize use of Park fees to fund Park-related tribal activities and tribal cultural enhancement projects.
- ◆ Submit Park base budget increase proposal to fund Park-related tribal activities and tribal cultural enhancement projects.
- ◆ Submit Bureau of Indian Affairs base budget increase proposal to provide administrative services to newly established trust lands.
- ◆ Design and place new signs identifying the Timbisha Shoshone Homeland at appropriate locations in consultation with the Tribe.
- ◆ Support tribal requests for funding from other sources.
- ◆ Establish a presumption that pilot projects, if successful, will lead to long-term agreements and be incorporated into Park management plans.



## **PART 4 - CONCLUSION**

Taken together, this report sets out an integrated, comprehensive plan that reflects highest values of our nation. As a result of this plan, the Timbisha Shoshone Tribe will have received a long overdue measure of justice, and Death Valley National Park will more fully reflect its long and dignified human history.

As these recommendations are carried out, the Tribe can finally return to portions of their Homeland on which they can build viable communities today and in the future. The parcel recommended for trust land at Furnace Creek is critical to the future of the Tribe as it is the current home of tribal members and has the potential for the modest development described above. However, the Tribe and the Park recognize that development opportunities are severely limited inside the Park and will be subject to standards consistent with Park values. It is clear that additional opportunities must be provided to the Tribe on trust parcels outside the Park. Of the lands identified as suitable for a reservation outside the Park, the parcel with most potential for future tribal development is a privately owned ranch in Lida, Nevada. This parcel has sufficient water and access to infrastructure to sustain a second Timbisha community outside the Park once the agreed upon the level of development at Furnace Creek is reached. The four other parcels, now managed by the Bureau of Land Management, are very important to the Tribe and will serve future tribal needs, but are more remote with less access to infrastructure at present.

As the negotiation process to date has created a solid working relationship based on trust, so too does this recommended plan provide the foundation for productive, collaborative relationships among governments and neighbors in the future. This emerging partnership can only further enrich our American heritage.



## APPENDIX A

### Timbisha Shoshone-Department of the Interior Negotiating Teams

#### Tribal Negotiating Team

Pauline Esteves, Timbisha Shoshone Tribal Chairperson  
Barbara Durham, Timbisha Shoshone Tribal Administrator  
Leroy "Spike" Jackson, Timbisha Shoshone Tribal Vice Chairman  
Grace Goad, Timbisha Shoshone Tribal Secretary-Treasurer  
Dorothy Alther, Tribal Attorney, California Indian Legal Services  
Steven Haberfeld, Tribal Consultant and Advisor, Indian Dispute Resolution Services, Inc.

#### Federal Negotiating Team

Karen Atkinson, Counselor to Assistant Secretary for Fish, Wildlife, and Parks  
Elizabeth Lohah Homer, Director, Office of American Indian Trust, Bureau of Indian Affairs

John Reynolds, National Park Service, Director, Pacific West Region  
Richard Martin, National Park Service, Superintendent, Death Valley National Park  
Patricia Parker, National Park Service, Chief, American Indian Liaison Office

Ron Huntsinger, Field Station Manager, Bureau of Land Management, Tonopah Office  
Greg Thomsen, Resources Staff Chief, Bureau of Land Management, Ridgecrest Office

Doug Rollins, Bureau of Indian Affairs, Self-Determination Officer, Central California Agency  
James Brafford, Bureau of Indian Affairs, Realty Officer, Central California Agency

Thomas Bellinger, Hydrologist, Bureau of Reclamation, Denver Technical Service Center

#### Facilitator

Charles Wilkinson, Moses Lasky Professor of Law, University of Colorado Law School



## **APPENDIX B**

### **Timbisha Shoshone Tribe and U.S. Government Land Base Negotiation Meeting Death Valley**

#### **Ground Rules**

##### **PREAMBLE:**

The Timbisha Shoshone study provisions of the California Desert Protection Act and related issues involve critical concerns of the Timbisha Shoshone Nation and the United States and require bilateral, government-to-government negotiations between the two sovereigns. A special political relationship, including a trust obligation, exists between the Timbisha Shoshone Nation and the United States. Continuity among the representatives to the negotiations is critical. The negotiations shall be conducted by a core group as follows:

TIMBISHA SHOSHONE: Pauline Esteves, Barbara Durham, Spike Jackson, Dorothy Alther and Steven Haberfeld.

NATIONAL PARK SERVICE: John Reynolds, Pat Parker, Dick Martin.

ASSISTANT SECRETARY FOR INDIAN AFFAIRS: Elizabeth Homer

ASSISTANT SECRETARY FOR FISH, WILDLIFE AND PARKS: Karen Atkinson.

BUREAU OF LAND MANAGEMENT: Greg Thomson and a representative from Nevada to be determined.

BUREAU OF INDIAN AFFAIRS: Representative to be determined.

BUREAU OF RECLAMATION: Representative to be determined.

All members of the group shall use their best efforts to attend all of the meetings. Alternates may attend in their absence. Others may be added to the core group, or invited to meetings on specific issues as appropriate.

The following principles shall guide the negotiations:

1. There may be times when the representatives at the table require ratification at a higher level. In those instances, they have the responsibility to follow-up and get answers promptly. If a recommendation is rejected, the representatives will explain why.
2. Anyone can call a caucus at any time.



3. The representatives may speak with external persons, including the press, about the status of the process and may identify the issues. They will not discuss the substance of proposals except through written statements agreed upon by the public, unless otherwise agreed upon or as required by law. The representatives shall speak only for themselves and not for other persons.

4. All agendas shall be jointly developed by the parties.

5. A summary of the discussions, including all understandings reached, shall be kept for each meeting.

### **Framework for Achieving a Timbisha Shoshone Homeland**

1. The representatives of the parties to this framework are as follows:

**Timbisha Shoshone Tribe:** Pauline Esteves, Barbara Durham, Leroy (Spike) Jackson, Steven Haberfeld, and Dorothy Alther.

**National Park Service:** John Reynolds, Dick Martin, and Patricia Parker.

**Assistant Secretary for Fish, Wildlife, and Parks:** Karen Atkinson.

**Assistant Secretary for Indian Affairs:** Elizabeth Lohah Homer.

**Bureau of Land Management:** Greg Thomsen and Ron Huntsinger.

2. The parties, in order to fulfill the requirements of the Timbisha Shoshone Tribe provisions of the California Desert Protection Act, Section 705(b), and to resolve related issues, agree to the terms of this framework. They understand that this framework is general and that it is intended to lead to a specific, formal proposal for achieving a Timbisha homeland. This is a joint effort and the parties agree to proceed with the utmost cooperation. The federal parties have a special, government-to-government relationship, which includes a trust obligation, with the Tribe.
3. The parties share the following interests, which are consistent with the letter of James Pipkin, Counselor to the Secretary of the Interior, to Senator Ben Nighthorse Campbell, dated March 14, 1997. The parties will work toward fulfilling these interests as appropriate during the planning process described in this framework:
- Co-existence and a dynamic relationship between the Tribe and the Park Service in Death Valley;
  - Recognition of the sovereignty of the Tribe;
  - Establishment of a permanent homeland for the Tribe in traditional ancestral land areas falling within and without today's National Park boundaries;
  - Establishment of quality housing clusters for tribal members close to schools, services, and physical infrastructure (roads, electricity, water and sewage, etc.). Proposed



- locations will include places in and near Furnace Creek as well as elsewhere in the Tribe's original homeland;
- e. Use by the Tribe of its traditional summer camping areas for seasonal use (including the possibility of physical structures), harvesting, stewarding land and natural resources, etc.
  - f. Establishment of the Tribe's government headquarters and community and human service programs in and near Furnace Creek or in other areas that may become desirable during completion of the study;
  - g. The preservation and development of the Tribe's own dynamic indigenous culture by living as a community on its ancestral lands;
  - h. The involvement of the Tribe in economic and employment development activities, particularly in low-impact eco-tourism development;
  - I. Recognition of the Tribe's historic responsibility to remain concerned and engaged in the active protection and preservation of the environmental (water, vegetation, wildlife) and cultural resources of the Death Valley area;
  - j. Recognition of the Tribe's interest in being an integral part, in full partnership with the Park Service, of the Death Valley National Park's landscape and program, including presenting/interpreting its own history and culture to Park visitors;
  - k. Recognition that any future or additional development of land in Furnace Creek will be conditioned by availability and allocation of water and by jointly established standards of size, impact and design;
  - l. Recognition of the common interests of the Timbisha Shoshone and the United States in the conservation and preservation of the plants, animals, land, air and water and their natural relationships in the Death Valley area, and in providing for the enjoyment and recreation by visitors.
  - m. Recognition of a common interest in the compatibility of other land uses.
4. The parties, working jointly as governments and in full cooperation, agree to complete four studies. The parties will use their best efforts to reach agreement on joint proposals resulting from each study. Any proposals that result from these studies shall be subject to appropriate public comment and input before any final recommendations are made.
5. The parties recognize the paramount importance of the Tribe's having sufficient technical support, working at the direction of the Tribal Council, to participate in completing these four individual studies and to coordinate and assess the four studies as a comprehensive whole. Accordingly, the parties agree to use their best efforts to provide such technical support for the Tribe.
6. The parties recognize the need to include the Bureau of Indian Affairs, the Bureau of Reclamation, and perhaps other agencies, in these study efforts as appropriate.
7. The four studies are described in general terms below. The listed potential land uses and tribal land interests are illustrative and are not meant to be exclusive; the studies will be conducted in a cooperative, creative spirit in order to obtain the optimal proposals consistent with the joint interests set forth in section 3, above.



- a. Furnace Creek Area
- Potential land uses: Housing, tribal government headquarters, community center, museum, low-impact economic development
  - Nature of tribal land interest: Permanent tribal land tenure, with full consideration of a range of legal options
  - Lead federal agency: Park Service
  - Proposed completion date: \_\_\_\_\_
- b. Eastern Area - BLM (Death Valley Junction; Scotty's Junction, including Lida Summit; and Magruder Mountain area)
- Potential land uses: Economic development, housing, traditional uses
  - Nature of tribal land interest: Tribal ownership, probably tribal trust land
  - Lead federal agency: Bureau of Land Management
  - Proposed completion date: \_\_\_\_\_
- c. Eastern Area - Park Service ( Daylight Pass; Mesquite Spring)
- Potential land uses: Economic development, housing, traditional uses, ecosystem restoration
  - Nature of tribal land interests: Permanent tribal land tenure, permit, cooperative management agreement, as appropriate.
  - Lead federal agency: Park Service
  - Proposed completion date: \_\_\_\_\_
- d. Western Area ( Saline Valley, Hunter Mountain, Lower Saline, Eureka Valley, Wildrose, Panamint Range and Valley)
- Proposed land uses: Traditional uses, cultural camp and spiritual area, ecotourism, economic development, as appropriate
  - Nature of tribal land interest: Cooperative management, permit, tribal trust land, as appropriate
  - Lead federal agency: Park Service in cooperation with the Bureau of Land Management and Forest Service, as appropriate
  - Proposed completion date: \_\_\_\_\_

8. This framework may be amended at anytime by the agreement of the parties.



## APPENDIX C

### Shared Interests of the Timbisha Shoshone Tribe and the United States Government

#### **Tribal Sovereignty and Self-Determination**

- ◆ Recognition of the sovereignty of the Tribe and the need for tribal jurisdiction on tribal lands;
- ◆ Establishment of a permanent land base for the Tribe in traditional ancestral homeland falling within and without today's National Park boundaries;
- ◆ Preservation and development of the Tribe's own dynamic indigenous culture by living as a community on its ancestral lands;
- ◆ Involvement of the Tribe in economic and employment development activities, particularly low-impact eco-tourism development, and
- ◆ Establishment of quality housing clusters for tribal members close to schools, services, and physical infrastructure (roads, electricity, water, and sewage, etc.). Proposed locations will include places in and near Furnace Creek as well as elsewhere in the Tribe's original Homeland; and,
- ◆ Establishment of the Tribe's government headquarters and community and human service programs in and near Furnace Creek.

#### **Natural and Cultural Resource Protection**

- ◆ Recognition of common interests of the Timbisha Shoshone and the United States in the conservation and preservation of the plants, animals, land, air, and water and their natural relationships in the Death Valley area, and in providing for the enjoyment and recreation of visitors;
- ◆ Recognition of the Tribe's historic responsibility to remain concerned and engaged in the active protection and preservation of the environmental (water, vegetation, wildlife) and cultural resources of the Death Valley area; and,
- ◆ Recognition of a common interest in the compatibility of other land uses.

#### **Tribal Presence in the Park**

- ◆ Co-existence and a dynamic relationship between the Tribe and the National Park Service in Death Valley National Park;
- ◆ Recognition of the interests of the Tribe and the National Park Service in making the Tribe an integral part, in full partnership with the National Park Service, of the Death Valley National Park's landscape and program, including presenting/interpreting the Tribe's own history and culture to Park visitors;
- ◆ Use by the Tribe of its traditional summer camping area for seasonal use (including the possibility of physical structures), harvesting, stewarding land and natural resources, etc.; and,
- ◆ Recognition that any future or additional development of land in Furnace Creek will be conditioned by availability and allocation of water and by jointly established standards of size, impact, and design.





## APPENDIX D

# United States Department of the Interior

OFFICE OF THE SOLICITOR  
Washington, D.C. 20240

IN REPLY REFER TO:

Memorandum

MAR 17 1999

To: Karen Atkinson, Counselor to the Assistant Secretary for Fish Wildlife and Parks  
Elizabeth Homer, Director Office of American Indian Trust

From: Derril B. Jordan, Associate Solicitor, Division of Indian Affairs *Derril B. Jordan*

Subject: Clarification of Rights of Timbisha Shoshone in Newly Designated Homeland

The California Desert Protection Act, section 705(b), directed the Secretary to conduct a study to identify lands suitable for a reservation for the Timbisha Shoshone Tribe within the Tribe's original homeland area. A joint Federal-Tribal negotiating team conducted a suitability study that recommended a plan to establish a permanent homeland for the Tribe. The details of this plan are laid out in a draft report to Congress. The report recommends that several separate parcels of land be transferred to the Tribe in trust and that other areas be designated as non-exclusive tribal use areas. Under the plan, 300 acres at Furnace Creek, in Death Valley National Park, will be transferred to the Tribe in trust and an additional 3000 acres will be designated the Timbisha Shoshone Natural and Cultural Preservation Area within which low impact, traditional tribal uses will be authorized subject to an established plan. In the lands transferred to the Tribe in trust within the Park, gaming operations will be prohibited.

In areas outside Death Valley National Park, the report proposes to transfer approximately 7,200 acres of Bureau of Land Management (BLM) land into trust for the Tribe and legislation is requested to authorize and appropriate funds for the purchase of three private parcels previously owned by tribal members. The BLM lands to be transferred in trust to the Tribe include four separate parcels: 1) 1,000 acres at Death Valley Junction, California, east of the park; 2) 640 acres at Centennial, California, west of the park; 3) 2,800 acres near Scotty's Junction, Nevada, northeast of the park; and 4) 2,800 acres near Lida, Nevada, north of the park. Under the plan, these parcels will be designated as part of the Tribe's reservation and Indian country. You have asked whether the Tribe will be able to conduct gaming on these BLM lands outside of the park boundaries.

The Indian Gaming Regulatory Act (IGRA) contains a general prohibition of gaming on lands acquired by the Secretary in trust for Indian tribes after October 17, 1988. 25 U.S.C. § 2719. There are a few exceptions to this general prohibition, however. The prohibition on gaming does not apply when lands are taken into trust as part of the initial reservation of an Indian tribe acknowledged by the Secretary under the federal acknowledgment process. 25 U.S.C. § 2719 (b)(1)(B)(ii). In 1983, the Secretary acknowledged the Death Valley Timbisha Shoshone Band of California as a federally acknowledged tribe pursuant to the regulations at 25 C.F.R. Part 83. 44 Fed. Reg. 214 (November 4, 1982). Since the Timbisha Shoshone do not currently have a land base, and the Secretary has not previously taken any other lands into trust for the benefit of



the Tribe, these BLM parcels outside Death Valley National Park would constitute the initial reservation of a tribe acknowledged by the Secretary, and thus would fall under the exception to the general prohibition on gaming.

However, to be in compliance with IGRA, any Tribe that wishes to conduct class III gaming on Indian lands must be located in a state that permits such gaming for any purpose by any person, organization, or entity, must have a gaming ordinance approved by the NIGC, and must also negotiate a tribal-state compact with the governor of the state in which the Indian lands are located. 25 U.S.C. § 2710 (d)(1)(A)(B) and (C). While gaming can occur on the BLM parcels transferred to the Timbisha Shoshone in trust, the Tribe must negotiate a compact with the governor of either California or Nevada if the Tribe wishes to conduct class III gaming on a specific parcel located within those states.

Notwithstanding the provisions for class III gaming under IGRA, the Tribe can conduct class II gaming without federal approval and the concurrence of the governor of the state in which the Indian lands are located provided that the State permits such gaming for any purpose by any person, organization or entity and that the Tribe has an ordinance approved by the NIGC. 25 U.S.C. § 2710(b)(1)(A) and (B). Class II gaming is defined as the game of chance commonly known as bingo (whether or not electronic, computer, or other technologic aids are used) and card games that are explicitly authorized by the laws of the state or not explicitly prohibited by the laws of the state. 25 U.S.C. § 2703(7)(A).



## APPENDIX E

### Bibliography

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- Werrell, William L., ed., Hydrologist, *Ground Water Resource Issues of Death Valley National Park Related to Timbisha Shoshone Proposed Reservation*, Death Valley National Park. 1998







**APPENDIX T**

**TIMBISHA SHOSHONE TRIBE  
“TRIBAL NEEDS ASSESSMENT AND SOCIOECONOMIC PROFILE”**







# TIMBISHA SHOSHONE TRIBE

## "TRIBAL NEEDS ASSESSMENT AND SOCIO-ECONOMIC PROFILE"

**FAX MEMO**  
PAGES 22 DATE 8/14 FAX 365-  
TO: KIPRO WASHA ASSOC  
FROM: BARBARA  
CO: TIMBISHA  
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**VALLO & ASSOCIATES**  
4221 Northgate Boulevard  
Sacramento, California 95834

Under Contract To:

**California Indian Manpower  
Consortium, Inc.**  
4153 Northgate Boulevard  
Sacramento, CA 95834

MARCH, 1994



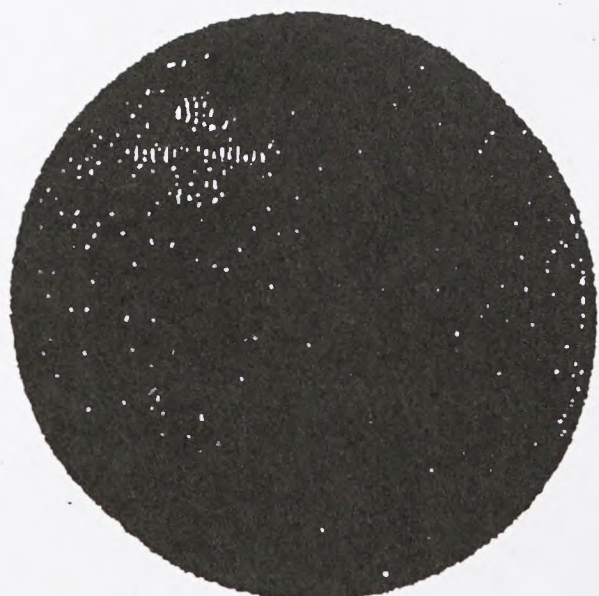


## Shoshone Tribe.

A comprehensive Tribal plan or Reservation development strategy is based on a thorough assessment of Tribal needs and an accurate socioeconomic profile. Their must be involvement from all Tribal members in planning for future generations. Identified needs provide justification for funding projects that will help enhance the Reservation's development and solve problems identified by the members. The Tribal needs assessment survey and socioeconomic profile will also help the Timbisha Shoshone Tribal Council better focus its governance functions, because the survey shows the conditions of the Reservation, its population and what concerns and issues the members feel are important. Among the uses of the survey results are: 1) preparing the Bureau of Indian Affairs 'Labor Force Report,' and 2) preparing the 'Income Survey' required of all Housing and Urban Development applications. Furthermore, it is recommended that the Tribe use this and subsequent

## FIGURE 1

### TIMBISHA SHOSHONE TRIBE Residence of Survey Respondents



surveys to build a Five and Ten-Year Tribal Action Plan (TAP) and their Overall Economic Development Program (OEDP); these would be based upon the needs expressed below by the members of the Tribe, the survey respondents, rather than merely the Tribal Council

Normally, the surveyors compare the results of the Socioeconomic profile with the 1990 U.S. Census information. In the case of the Timbisha Shoshone Tribe, there are no 1990 Census data on the Tribe, presumably because there is no official Reservation, as yet, carved out of the Death Valley National Monument. Therefore, the American Indian data from the Census is part of that for Inyo County as a whole; the data is not broken-out for the Death Valley region. A Summary of the Results of the Socio-Economic Data of the Reservation is as follows:

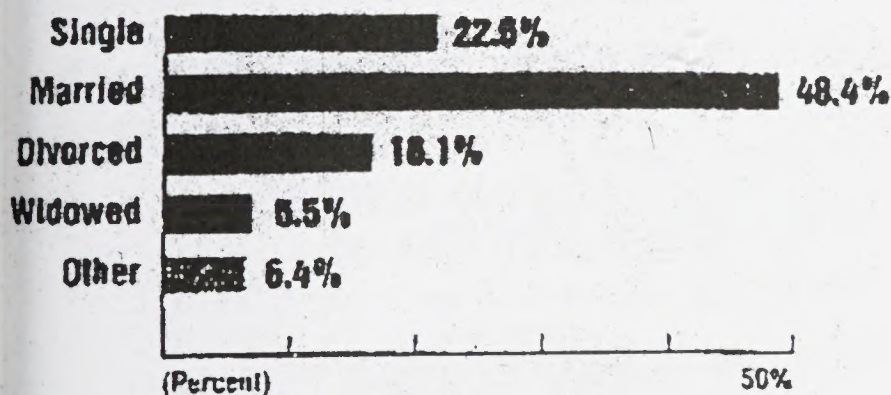
The population of the Timbisha Shoshone Indian Tribe, according to the current socioeconomic profile is 207. Without knowing the eligibility of all the members of the 82 households of the Tribe, nor the provision of the Enrollment Ordinance, membership could be as high as 277. The Needs Assessment survey questionnaire was also mailed out or given out to all members, including out-of-area members. Of the 82 households surveyed, 32 households responded with completed, or partially completed surveys, or, 39.0 percent of the households of the Timbisha Shoshone Tribal membership. The 32 households represent 108 persons; this is the sample used by the surveyors to estimate the Reservation's population and other relevant socioeconomic data. Again, not all the respondents to the survey questionnaire answered every survey question; this explains why the percentages differ from question to question.



However, the responses were sufficient to provide a reasonable indication of the **concerns and wishes of the members**. In terms of the survey categories to which members responded with greatest frequency; this indicates the relative interest of the members in the survey categories. They are as follows, in descending order: (1) Economic Development, including Land Base [98.0%], (2) Personal [96.3%], (3) Cultural [93.0%], (4) Tribal Administration [89.1%], (5) Housing [87.0%], (6) Health Services [83.0%], (7) Education [76.0%], (8) Community Development [68.0%], (9) Transportation [59.0%] and (10) Social Services [49.0%].

**FIGURE 2**

### **TIMBISHA SHOSHONE TRIBE** **Marital Status of Adult Members**



## **MARITAL STATUS**

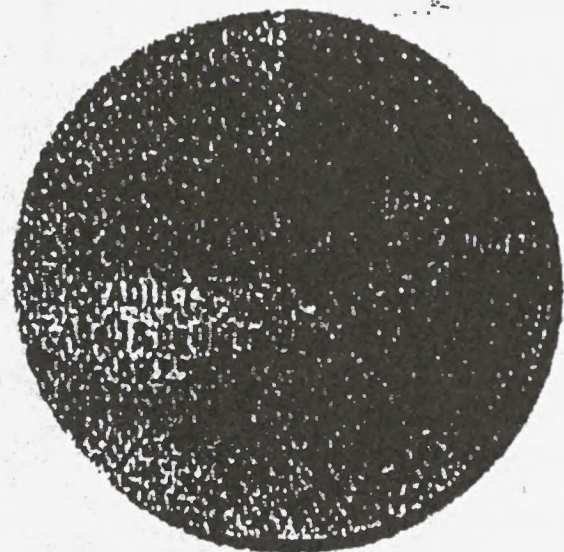
Figure 2 shows that 22.0 percent of the Tribe is "single," including one-parent families, 48.4 percent are "married," 16.1 percent are "divorced," 6.5 percent are "widows" and 6.4 percent checked the "other" category.

## **GENDER**

54.5 percent of the members of the Timbisha Shoshone Reservation are female; 45.5 percent are male.

**FIGURE 3**

### **TIMBISHA SHOSHONE TRIBE** **Population Characteristics, Adult and Youth**



## **CHILDREN AND YOUTH**

74.3 percent of the members who responded to the survey had children; their average age is 10 years of age. Figure 2 shows that 31.8 percent of the Reservation's population is 17 years of age or younger and that the median age of the members is 21.7 years.

## **EDUCATION**

In terms of school dropout rate, it is 29.0 percent, no diplomas were received by this percentage of the membership. 20.0 percent of the membership has had some college training, and 6.6 percent indicate that they are college graduates.



In addition, 29.6 percent indicated that they have had vocational training, and 66 percent completed such training in such areas as:

Truck Driving, Registered Nursing, Manicuring/Cosmetology, Electronics, Computer Repair, Drafting, CNA-level Nursing, Secretarial, and Landscaping/Horticulture.

When asked to identify what kind of training would enhance their employability, they identified the following areas of study:

Computer Training  
Nursing  
Bookkeeping/Accounting  
Entrepreneurship  
Heavy Equipment Operator  
College Training  
Mechanic Training  
Secretarial

When asked whether or not they would be interested in pre-vocational training in order to better prepare for skill training, 74.0 percent said they would be interested in the pre-vocational training. When asked whether or not they would be interested in a 'orientation to world of work' training, 64.3 percent said they would be interested in the training.

Only 6.9 percent of the respondents indicated that they are now attending a community college, most of them out of state.

100.0 percent of the respondents said they wanted their children to go to college, and 96.0 percent indicated that they wanted the Tribe to establish a scholarship fund to help finance the education of the Tribe's youth.

The survey respondents, in the sample, indicated

they had 64 children under age 18, distributed in school, as follows.

Pre-School:	8.7 %
K-8:	52.2 %
9-12:	26.1 %
College:	8.7 %
Postgraduate:	4.3 %

As can be seen by the school population data, Timbisha Shoshone Tribe has a relatively young population. However, only 16.7 percent of the survey respondents indicated that their children were enrolled in a special program or an Indian cultural program like JOM (a Johnson-O'Malley Act-funded program).

When the survey respondents were asked what educational needs they would like to see implemented for their children, they identified the following (ranked in descending order):

1. Computer Training
2. Study Centers for Children
3. Scholarship Aid for College
4. Tribal Language, History and Culture
5. Tribal Crafts
6. Substance Abuse Counseling/Training
7. Health Occupational Training
8. Law, Music and the Arts

The very number of these ideas indicates a great deal of interest and concern on the part of the Tribal members for their children.

In terms of after-school care, 23.8 percent said that they need after-school care.

As for day-care, 18.2 percent of the respondents need day care.



Despite a relatively high school dropout rate, in terms of educational achievement level of the Timbisha Shoshone Tribe, its members greatly desire access to educational opportunities for themselves and their children, indicated by the fact that 100 percent want their children to attend college.

What about the educational resources that might be available to Tribal members through the local public school system and the community libraries? Only 15 percent of the Timbisha Shoshone membership, including children, makes use of the public library.

## EMPLOYMENT

Figure 4 shows the unemployment rate of the Timbisha Shoshone Reservation as 39.6 percent, a rate more than three-times that of Inyo County and four times higher than the state average.

**FIGURE 4**

### TIMBISHA SHOSHONE TRIBE Labor Force Characteristics

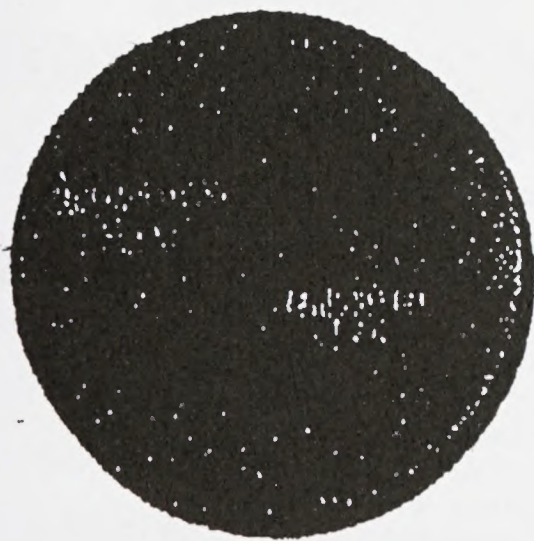
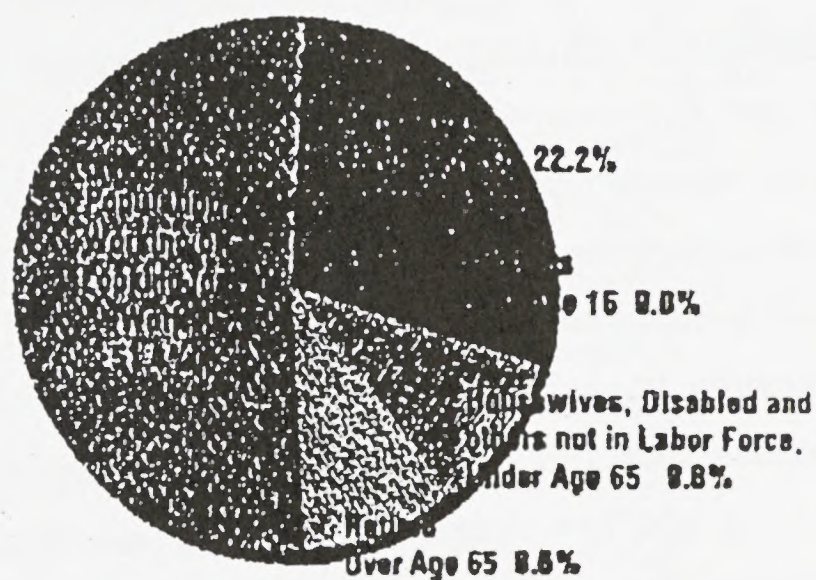


Figure 5 shows that 51.4 percent of the Tribe's population is in the active labor force (working or

looking for work). Figure 5 also shows the Tribe's population characteristics such population under age 16, the student population over age 16, the percent of population over age 65, and the percent of the working age population that are not in the active labor force by reason of disability, they are housewives, in the military, etc.

**FIGURE 5**

### TIMBISHA SHOSHONE TRIBE Population Characteristics, By Type



Job satisfaction is indicated as 58.8 percent indicated that they were satisfied with their job, of those working. Current jobs of members include such occupations as truck driver, Registered Nurse, Certified Nursing Assistant, cook, manicurist, clerk, computer repairman, maintenance mechanic, foreman, weatherization supervisor, public works employee, salesperson, cashier, waitress, van driver, coal miner, and administrator.

Of those working, 23.5 percent were working part-time; this accounts, in part, for the high number of low-income households among those who have jobs.

Of those who were unemployed, approximately



66.6 percent were actively seeking work

The fact that the unemployment rate is so high, at 39.6 percent is important data to employment and training planners, such as the California Indian Manpower Consortium (CIMC) and the Tribal Council.

Those who were unemployed listed the following as jobs they want: computer operator, professor, nurse, mechanic, Tribal business entrepreneur, marine biologist, writer, business owner, and secretary.

98.4 of the respondents to the survey thought the Tribe should offer job training or career assistance.

Of the type of job training or career assistance desired, the following represent a sampling of the respondent's suggestions: computer training, nursing/health occupational training, mechanic training, entrepreneurial training, professional training, alcohol/substance abuse training, pre-vocational training, bookkeeping, and "how to make a living from the land" training. The strongest training request, by far, was for computer-based training.

21.4 percent of the respondents indicated that they had been self-employed, a relatively high number. In future development, these persons might be able to bring some good business experience to Tribe. The types of businesses the members said they operated included truck driver/operator, wood production and sales, book store owner, and grant proposal writing. Of all the members surveyed, 45.8 percent said that they wanted entrepreneurial training. This may mean that the Tribe might consider having California Indian Manpower Consortium or other agency teach entrepreneurial skills to the members who are interested, particularly because of

the Tribe's plans to start more businesses on the Reservation, once they acquire a land base.

## INCOME SOURCE

Even more striking than the Reservation's unemployment rate among members is its rate of poverty. This means that the members are not making enough salary to adequately provide for their families.

Figure 6 shows that a whopping 81.2 percent of the Tribe's households are under the 1993 poverty threshold which is \$13,950 for a family of four.

FIGURE 6

### TIMBISHA SHOSHONE TRIBE Poverty Characteristics

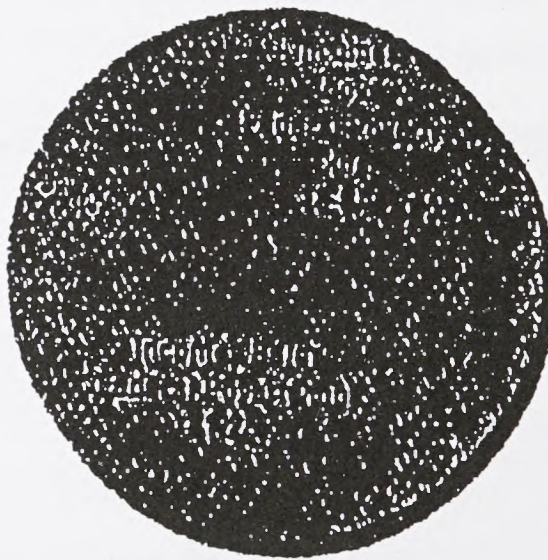


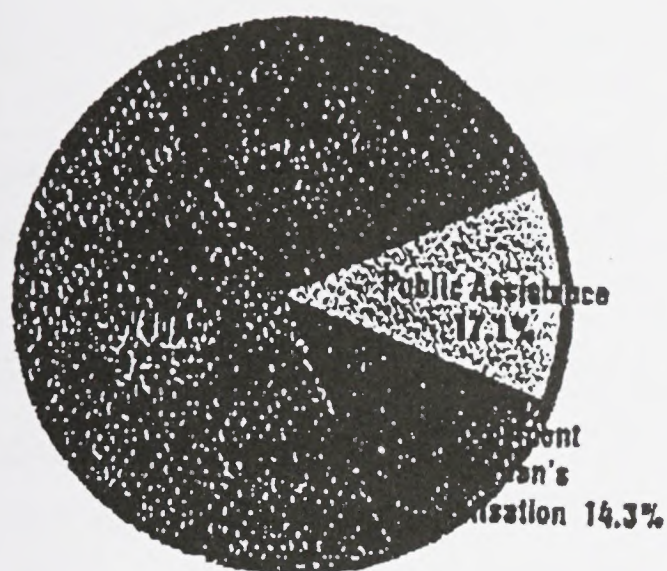
Figure 7 shows the source of income of the residents of the Timbisha Shoshone Reservation. 42.9 percent of the survey respondents indicated they receive their income from wages. Social Security and Supplemental Security Income (25.7 percent), followed by Public Assistance (17.1 percent), and Unemployment Compensation at 14.3 percent.



**FIGURE 7**

### TIMBISHA SHOSHONE TRIBE

#### Source of Income of Reservation Households



The number of household members average 3.38 persons per household. The household incomes on the Timbisha Shoshone Reservation is very low. Only ten of the 82 households are over-income by Department of Housing and Urban Development (HUD) standards, and 84.2 percent of the households are classified as "Very Low Income."

## TRANSPORTATION

The Timbisha Shoshone Reservation is located in Death Valley, California, in Inyo County, approximately 100 miles northeast of Los Angeles. 85.0 percent of the respondents indicated that they use their own automobile to transport themselves to service providers, work, etc. Therefore, transportation to and from services is not a major problem for members of the Timbisha Shoshone Tribe, despite the fact that Death Valley is geographically remote (at this time, most members of the Tribe do not live in Death Valley).

However, 70.1 percent felt that the Tribe should provide some sort of transportation services, particularly to health care, social services (welfare), and shopping services for the elderly. Many members felt that the Tribe should buy vans to help with transportation. Transportation for health care was the most prominently suggested service, by the survey respondents.

## HOUSING

The Timbisha Shoshone Tribes hopes to build homes for its members once land is secured. There are current negotiations with the National Park Service for land for the Tribe. 29.4 percent of the respondents rent their homes. 23.5 percent of the respondents have other living arrangements, such as living with a relative or friend. 47.1 percent of the respondents currently own their own homes. However, 43.6 percent of the survey respondents indicated that they would move to a Reservation if the Tribe provided housing, or at least, they would like this opportunity made available to their children if they should decide to live on the proposed Reservation.

Figure 8 graphically shows the distribution of renters and home-owners among the Timbisha Shoshone Tribal members.

The average number of people living at one household is 3.38, as indicated above.

87.9 percent of the members do not have members of another family (or extended family) living with them.

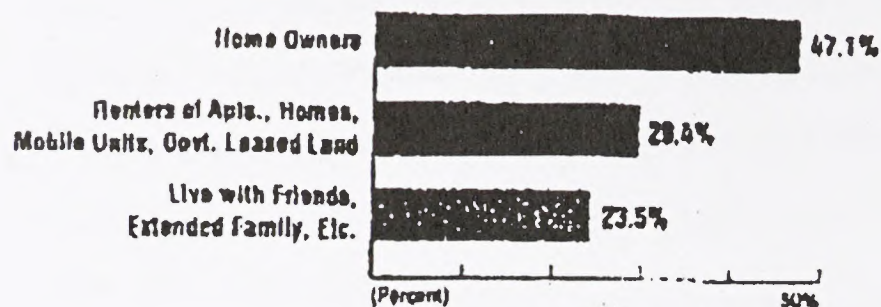
The average age of the dwelling/house of the respondents is approximately 19 years.

78.6 percent live in single-family units, 15.1 percent live in apartments, and 6.3 in mobile homes or trailers.



**FIGURE 8**

**TIMBISHA SHOSHONE TRIBE**  
Distribution of Households, by Owner/Rental Status



Most of the homes have three bedrooms and one bathroom; and 2.4 percent do not have bathrooms.

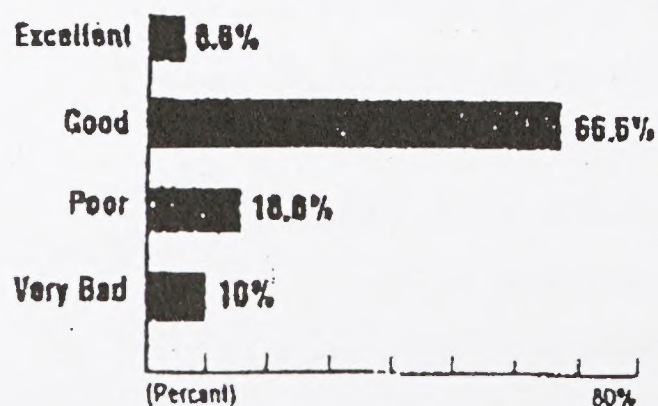
19.8 percent responded that their home did not have enough rooms for individual privacy, an indication of overcrowded housing conditions (this is important data for HUD applications)

6.6 percent of the members responded that the condition of their home was excellent, 66.6 percent responded that the condition of their home was in good condition, 16.6 percent responded that their home was in poor condition, 10.0 percent indicated that their home was in very poor condition.

Figure 9 shows these data graphically

**FIGURE 9**

**TIMBISHA SHOSHONE TRIBE**  
Housing Conditions



The need of interior and exterior repairs of the members are listed, in response to the Needs Assessment questionnaire, in order of the greatest need, is as follows:

1. Roofing
2. Insulation
3. Weatherization
4. Heating
5. Cooling
6. Flooring
7. Electrical
8. Screens
9. Rooms
10. Plumbing
11. Walkway, Steps
12. Lighting
13. Porch, Rails
14. Ventilation
15. Closets
16. Windows
17. Paint: Interior

Most of the respondents indicated that they resided on private, fee-property.

25.0 percent responded that their home is not situated in a healthy and safe location. This is a significant number and should be cause for concern.

## HEALTH SERVICES

Health care providers of Timbisha Shoshone Tribal members are:

33.3 percent Private Medical Doctor (includes some who also use the Indian Health Clinic/Hospital)

66.6 percent Indian Health Clinic/Hospital



Also, the members indicated that, in addition, they utilized the following providers

11.5 percent Specialists or Referral Contract Care (in addition to private or IHS services)

6.6 percent Traditional Healer (in addition to private or IHS services)

Of those who indicated that they use the services of the Indian Health Services, 75.0 percent of the members are satisfied with the quality of health care services they receive; 25.0 percent are not satisfied with the health care provided. This is a large percentage of persons dissatisfied with the care they are receiving. The concerns of the health care quality and the apparent communication problems are a matter of serious import. The reasons given by the members as to why they are not satisfied with the quality of health care, as stated, are

- Incompetence of Medical/Clinic Staff
- Don't Accommodate the Schedules of Working People
- Clinic not able to handle certain illnesses
- Clinic Slow in Providing Services, Especially Emergency Health Needs
- Difficulty in Getting Dental Appointments
- Staff does not understand How to Help the People

Health care services that Timbisha Shoshone Tribal members need but are not receiving are: (the percentages reflect the percent of those responding to this question in the survey)

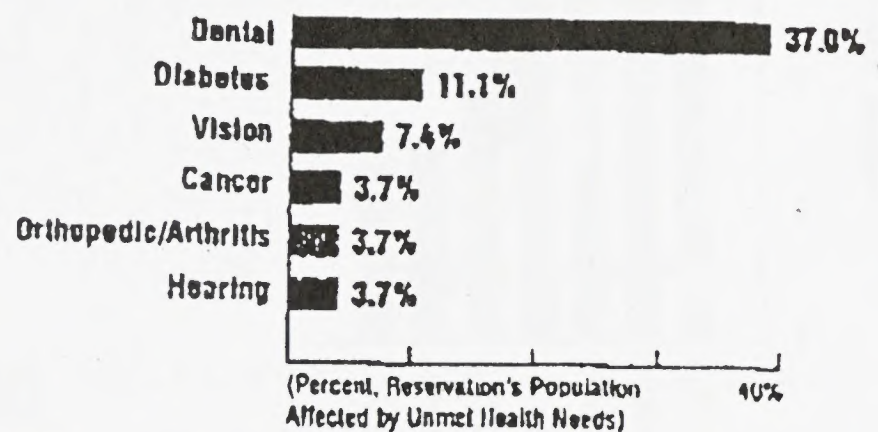
37.0 percent Dental Care  
11.1 percent Diabetes  
7.4 percent Vision

3.7 percent Cancer  
3.7 percent Orthopedic  
3.7 percent Arthritis  
3.7 percent Hearing

Figure 10 shows these data graphically.

**FIGURE 10**

**TIMBISHA SHOSHONE TRIBE**  
**Reservations Unmet Health Needs, By Identified Type**



The survey respondents indicated that they visit the Indian Health Clinic an average of seven times per year.

Ninety-one percent of the respondents indicated they did not need respite care for an elderly or a handicapped person.

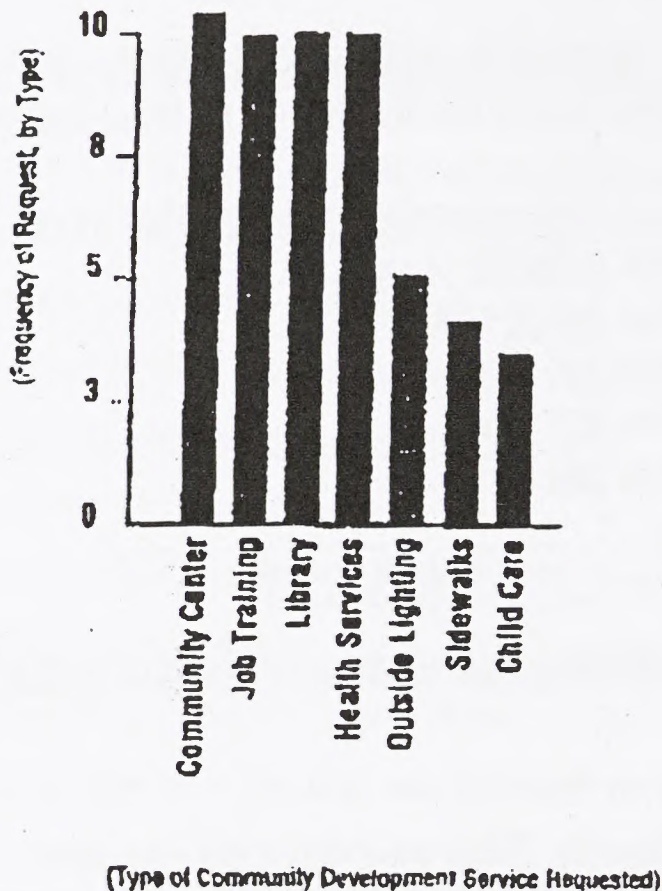
Fifty-Seven percent of respondents indicated that they either had no health insurance or relied solely on the health services provided through Indian Health Service Clinic, and/or Medicare, and/or MediCal. 43 percent do have health insurance with a private carrier made possible by their employer, or their spouse's employer. This is a larger number of persons with private insurance carriers than is generally true for most California Indian tribal members; in part, this is due to the fact that most of the Timbisha



members do not live on a Reservation, and many do not live near an Indian Health Clinic

FIGURE 11

**TIMBISHA SHOSHONE TRIBE**  
Community Development Needs  
Members Rank for Future Reservation,  
By Frequency of Request



## SOCIAL SERVICES

Timbisha Shoshone Tribal members, responding to the survey receive the following social services, in descending order according the services most frequently mentioned:

1. Food Stamps
2. Food Distribution
3. Low Income Heating and Energy Assistance Program (LIHEAP)
4. Alcohol/Drug Abuse Services
5. Senior Citizen Services

29.0 percent of the members responded that if they were senior citizens they would use senior citizen services. This rather low figure is another indication of the lack of a Reservation as well as a relatively youthful population

The types of programs or events Timbisha Shoshone Reservation members would like to see the Tribe provide senior citizens are (in ranked order)

1. Hot meals for elderly
2. Home Health Care
3. Field Trips
4. Transportation
5. House Repair
6. Cultural Activities

## COMMUNITY DEVELOPMENT

The Timbisha Shoshone Tribal members responded as follows, ranked in descending order beginning with the greatest number of requests/suggestions for community development services, which perceive the proposed Reservation will need:

1. Community Center
2. Job Training or Career Services
3. Library
4. Health Services
5. Outside Lighting
6. Sidewalks
7. Child Care

These data are graphically displayed in **Figure 11**.

For planning services which should be available to Timbisha Shoshone Tribal members, at least those



Based on an analysis of the survey, most of the members support Tribally-supported economic development, but are not sure of what type of economic activity or business that would work for the Reservation.

In terms of what members think about Tribal economic long-range goals, 82.9 percent of the members who responded would like to see the Tribe balance as the Tribe's **primary economic development goal** between using Tribal income to provide health and social services and jobs for Tribal members.

37.5 percent that the Tribe should see to it that qualified Tribal members are hired for the jobs created through economic development. 21.9 percent felt that qualified Indian people should be hired, if Tribal members were not available to work, as the Tribe's priority hiring policy, and 42.6 percent felt that the best qualified should be hired American Indian, or Non Indian, if necessary, and if they have the expertise.

92.1 percent said that CIMC training services should be utilized to assist Tribally-owned businesses. This strong response certainly indicates the Tribal members strong belief that quality job training should accompany economic development planning and implementation.

74.4 percent of the respondents indicated that they would volunteer to work in economic development projects; this should be encouraging to the Tribal Council as it indicates a strong commitment to economic development on the part of Tribal members. In general, this section of the questionnaire was very popular and important with the respondents who filled out at least part of the survey form: 98.0

percent responded to one or more the economic development questions

## CULTURAL

Timbisha Shoshone Tribal members would like to see more Shoshone cultural activities. The cultural activities Tribal members want most, are ranked as follows.

1. Tribal Language classes
2. Basketry
3. Traditional dances
4. Story telling
5. Tribal History
6. Traditional Religion

There was a strong interest in cultural questions among Tribal members; 93 percent of the returned, completed surveys answered the cultural questions.

## TRIBAL ADMINISTRATION

Concerning the Tribal Council, the following is what the Tribal members knew about the Tribal Council membership and the operations of the Tribal Council.

### *Timbisha Shoshone Tribe*

46.4 percent of the members do not know who is on the Timbisha Shoshone Tribal Council, according to the responses to the questionnaire.

### *Nature and Function of the Tribal Council*

53.1 percent of the members do not know what the Timbisha Shoshone Tribe does, according to the



survey of members

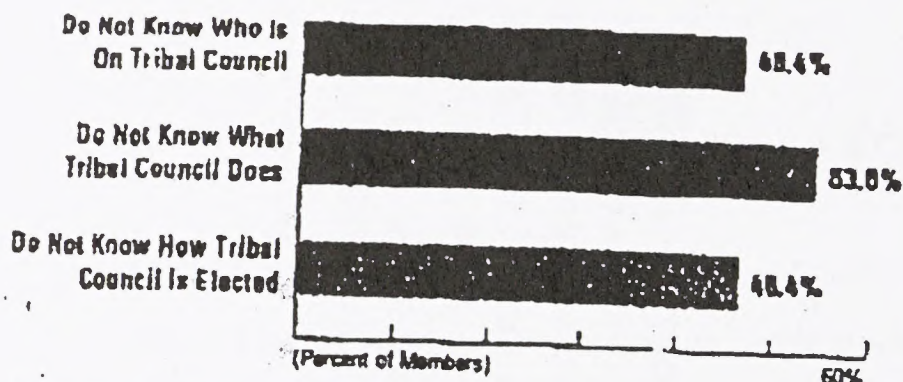
## Election of Tribal Council Officers

Also, 46.4 percent of the members do not know how the Tribal Council is elected and, when or how often.

This is shown graphically in Figure 12.

**FIGURE 12**

### TIMBISHA SHOSHONE TRIBE Awareness of Tribal Council Operations



The apparent lack of knowledge of the functions of the Tribal Council and when elections are held is, in part, due to the wide geographic dispersion of membership.

## Tribal Government Training

As a positive sign, most of the Tribal members expressed a desire for leadership and training in Tribal government and federal Indian law. 87.3 percent of the members would like to see tribal government training made available to all of the Tribal members.

In terms of Tribal government training, the following represents the most popular areas in which the survey respondents wish to be trained, in descending

order (the most popular training listed first):

1. Federal Indian Law
2. Tribal Council Operations
3. Tribal Constitution
4. Tribal History
5. Inter Governmental Relations

## Members' Concerns and Suggestions

The concerns and suggestions which Timbisha Shoshone Tribal members feel strongly about and which they wish that the Tribal Council to consider for either themselves or for other members of the Tribe, are as follows (ranked in descending order):

- Want more Information about the Tribal Council and the Tribe's Services.
- Want Jobs.
- Need to Acquire Land.
- Want Substance Abuse, Marital, and Financial Counseling.
- More Training for New Council Members
- Want Health Care on Reservation

The above list represents the most frequent responses; the following are concerns and suggestions that appeared on the returned questionnaires at least once:

- Need Land.
- Have Meetings in the Open; Be Honest with Members
- Have Meetings in a Location where More Members can Attend
- Tribe needs more teaching of Traditional Ways.
- Ask Members what they Need
- Help Others not just Family.

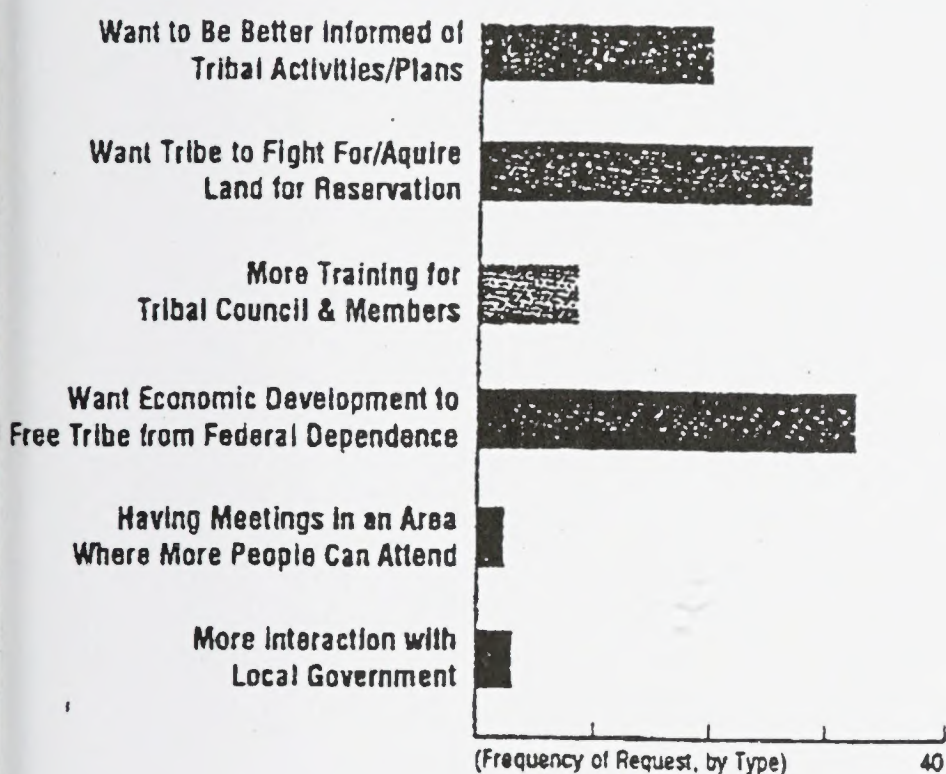


Need Better Inter-Action with Local Government.  
Need to Rely on Tribal Constitution; not U.S.  
Government Constitution

**Figure 13** further displays, in graphic form, the summary concerns of the Tribal members.

**FIGURE 13**

**TIMBISHA SHOSHONE TRIBE**  
Summary of Members' Concerns, Wants



Many of the survey respondents (60.7 percent) indicated that they would serve on one or more of the Tribal Council committees. Many of those volunteering now live out of state; this is another indication of their devotion to the Tribe. The following are those committees for which members would volunteer, in descending order in terms of popularity:

1. Economic Development Board
2. Bylaws and Policy Committee
3. Budget Committee
4. Enrollment Committee
5. Land Assignment Committee

6. Personnel Committee

7. Committee to Protect Tribal/Cultural Artifacts and Burial Grounds

## SUMMARY

If the survey researchers were asked the question, based on the responses to the questionnaire, 'what do Timbisha Shoshone Tribal members have on their mind, in priority order of concerns and issues?' The list would be as follows:

- The Need for LAND for a Reservation, Housing and Tribal Culture & Activities
- The Need for Jobs & Economic Development
- The Need for Tribal Language and Cultural Programs
- The Need for Better Quality Health Care
- The for More Involvement of members in Governing the Tribe

The following are suggestions, based on the results of this survey, for consideration by the Timbisha Shoshone Tribe:

A. Throughout the responses to the survey questionnaire, there was a very strong plea for more information from the Tribal government on the operations and activities of the Reservation. The members who live a great distance from the Reservation, indicated a strong hunger for information on the progress the Tribe is making in acquiring land, and other issues.

B. Concerning economic development, there is the greatest interest, and a strong concern for both



jobs and Tribal income, as seen from the survey results. All the people who responded to the survey, except two, indicated that the Reservation should pursue economic development activities. Also, the respondents had many suggestions about what economic development activities they thought were good for the Timbisha Shoshone Tribe, the most popular activity being a Gaming/Casino enterprise, and the second being some kind of store.

C. The members want more Timbisha Shoshone cultural programs, particularly Tribal language learning opportunities for the youth;

D. There was concern expressed among the respondents about the quality of the care of Tribal members by the Toiyabe Indian Health Clinic and other Indian Health Service clinics. The survey results indicate that the services of Toiyabe to the members of this remote Tribe, some 109 miles away, needs to be periodically evaluated.

E. Also, another section of the survey which received a high response was Tribal Administration; the respondents clearly saw the survey as an opportunity to provide feedback to the existing Tribal Council.

The response to the survey was excellent with nearly one-half of the households responding, at least, in part. Also, the survey, by itself, serves as a communication link providing feedback from the members to the Timbisha Shoshone Tribal Council.



**APPENDIX U**

**FEDERAL REGISTER SCOPING NOTICE**







# Federal Register Document

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[Federal Register: April 19, 1999 (Volume 64, Number 74)]

[Notices]

[Page 19193-19194]

From the Federal Register Online via GPO Access [wais.access.gpo.gov]

[DOCID:fr19ap99-89]

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## DEPARTMENT OF THE INTERIOR

### National Park Service

Notice of Scoping for Environmental Analysis of a Study  
Recommending a Timbisha Shoshone Tribal Homeland in and Around Death  
Valley National Park Inyo County, California and Esmeralda and Nye  
Counties, NV

SUMMARY: Notice is hereby given, in accordance with the provisions of the National Environmental Policy Act (42 U.S.C. 4321 et. seq.) that public scoping is being initiated for an environmental impact analysis process for a Draft Secretarial Report to Congress regarding a proposal to establish a permanent Timbisha Shoshone Tribal land base in and around Death Valley National Park. The purpose of this scoping effort is to identify public issues and concerns, and to assess the nature and extent of potential environmental impacts which should be addressed.

### Background

During 1994 Congress enacted the California Desert Protection Act (Pub. L. 103-433), which in part addressed the need of the Timbisha Shoshone Tribe for a recognized land base. The Secretary of the Interior was directed (in Section 705(b) of the act) to conduct a study to identify lands suitable for a reservation for the Timbisha Shoshone Tribe.

As a direct result, a joint Federal-Tribal negotiating team was convened for the purposes of drafting a suitability study. In drafting their proposal, the factors scrutinized to date include: basic tribal needs for a land base (for housing, tribal administration, economic development, and cultural restoration); mandates prescribing federal land stewardship; complementary interests of the Timbisha Shoshone Tribe and the Federal government; geographical constraints; climate and availability of water; mining claims; special resource limitations such as Congressionally designated Wilderness and also Areas of Critical Environmental Concern; and availability of infrastructure such as roads, power, and other services. With due diligence the efforts of this government-to-government team have culminated in a comprehensive integrated draft proposal to establish a permanent Homeland for the Timbisha Shoshone Tribe.

### Comment and Approval



As noted, the Department of the Interior including the National Park Service, Bureau of Land Management, Bureau of Indian Affairs, and Bureau of Reclamation have undertaken government-to-government negotiations with the Timbisha Shoshone Tribe to address suitable strategies and actions for establishing a permanent Timbisha Shoshone Tribal land base in and around Death Valley National Park. At this time, it has not been determined whether an Environmental Assessment or Environmental Impact Statement will be prepared; however, this scoping process will aid in the preparation of either document.

As part of this effort, a series of public scoping meetings will be held during May, 1999. California and Nevada cities

[[Page 19194]]

where this scoping activity will be conducted are listed below--all meetings are scheduled for 7:00-9:00pm. For confirmed details about meeting locations please contact: Superintendent, Death Valley National Park, P.O. Box 579, Death Valley, California, 92328 (telephone (760) 786-3243).

- <bullet> May 24 in Pasadena, California;
- <bullet> May 25 in Ridgecrest, California;
- <bullet> May 26 in Lone Pine, California;
- <bullet> May 27 in Goldfield, Nevada;
- <bullet> May 28 in Pahrump, Nevada.

During the scoping period a study document--The Timbisha Shoshone Tribal Homeland: A Draft Secretarial Report to Congress to Establish a Permanent Tribal Land Base and Related Cooperative Activities--is available through Death Valley National Park. Topics addressed in the study document and anticipated to be discussed during these meetings include: background information on the government-to-government negotiation process; an historical perspective on the need for a permanent Timbisha Shoshone Tribal land base; identification of criteria used in the study process; the identification of legislative and administrative actions which would be necessary in order to implement the strategies identified to date; and the types and significance of the potential environmental effects, including potential cumulative impacts to wild burros and horses, wildlife, cultural and other natural resource use issues.

Interested individuals, organizations, and agencies are encouraged to provide comments or suggestions. Written comments regarding the Timbisha Shoshone Tribal Homeland proposal must be postmarked no later than June 15, 1999, and should be addressed to the Superintendent, Death Valley National Park (address as noted above). To obtain a copy of the study document or request other background information please contact the Superintendent, Death Valley National Park; the document and current information also are available via the park website ([www.nps.gov/deva](http://www.nps.gov/deva)).

The U.S. Department of the Interior officials responsible for approval are: the Assistant Secretary for Fish, Wildlife, and Parks; the Assistant Secretary for Land and Minerals Management; and the Assistant Secretary for Indian Affairs. If approved, the plan would subsequently be submitted by the Secretary of the Interior to Congress for consideration. If enacted, the National Park Service officials responsible for implementation would be the Superintendent, Death Valley National Park and the Regional Director, Pacific West Region; as well as the State Directors, Bureau of Land Management, California and Nevada; the Assistant Secretary for Indian Affairs; and the Bureau of



Indian Affairs, Central California Agency. The draft environmental document is expected to be available for public review in late summer or fall, 1999. At this time it is anticipated that the final plan and environmental document are to be completed in spring, 2000.

Dated: April 9, 1999.

John J. Reynolds,

Regional Director, Pacific West.

[FR Doc. 99-9672 Filed 4-16-99; 8:45 am]

BILLING CODE 4310-70-P







**APPENDIX V**

**TECHNICAL REPORT—DARWIN WATER SUPPLY AND  
LOWER CENTENNIAL FLAT  
WATER RESOURCE EVALUATION**







**TECHNICAL REPORT**

**Darwin Water Supply and Lower Centennial Flat**

**Water Resource Evaluation**

Prepared for

**National Park Service**  
Mojave National Preserve  
222 East Main, Suite 202  
Barstow, California 92311



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Engineering and Environmental Services  
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## **Darwin Water Supply and Lower Centennial Flat Water Resource Evaluation**

HLA Project No. 49179.2

This technical report was prepared by Harding Lawson Associates at the request of the National Park Service (NPS), in consultation with the Bureau of Land Management (BLM), the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of the NPS. This report and the interpretations and conclusions contained within are based in part on information presented in other documents that are cited in the text and listed in the references. Therefore, this report is subject to the limitations and qualifications presented in the referenced documents.



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**DISTRIBUTION**



## **1.0 INTRODUCTION**

This report discusses two water resource-related issues: the water supply for the town of Darwin; and if there is any apparent hydraulic relationship between the water supply for the town of Darwin and the potential development of water resources at Lower Centennial Flat on a parcel identified for transfer for the Timbisha Shoshone tribe. The investigation consisted of review of maps, published and unpublished data, and an interview with Glenn Harris, Natural Resource Specialist, Bureau of Land Management (BLM) Ridgecrest Field Office by Buck King (Harding-ESE), State of California Certified Hydrogeologist on June 26 at the BLM Ridgecrest District office and a follow up telephone conference held July 14, 2000. The interview consisted of reviewing site area maps compiled by Glenn Harris and clarifying the geology and Darwin town water supply source location. Other information reviewed during the interview consisted of two China Lake Naval Weapons Center, Area Springs Study Reports originally prepared for Naval Air Weapons Station, China Lake (NAWS China Lake) and a well drilling and lithology sampling log from the 1000-foot deep boring recently installed near the Lower Centennial Flat parcel. The investigation also included a site visit to the town of Darwin and Lower Centennial Flat on June 26, 2000.



## **2.0 DARWIN WATER SUPPLY SYSTEM**

The town of Darwin currently obtains its water supply from Coso Springs. Coso Springs are located in Section 22 Range 40E Township 20S at the old Coso site. The springs are approximately seven miles south-southwest of Darwin within the controlled access area of NAWS China Lake. Coso Springs occurs on east side of Coso Peak within the Darwin Wash drainage which drains to the north-northeast past the town of Darwin to Darwin Canyon and ultimately into Panamint Valley (Death Valley 1:250,000 USGS Topographic Map and Glenn Harris, 2000a). Coso Springs occur at an elevation of about 5800 feet and a 7-mile long gravity flow pipeline supplies the town of Darwin at an elevation of about 5000 feet.

Specific information on Coso Springs geology was not available. However, localized geologic maps and chemistry data for Crystal Spring, Indian Garden Spring, China Garden Spring, and Mariposa Spring was presented in Draft Final Study of 31 Native Springs Within The China Lake Test Ranges, China Lakes Naval Air Weapons Station, California (Earth Science Consultants, 1994) and made available to Buck King by Glenn Harris during the June 26, 2000 interview. The geologic data for these four springs was reviewed and used to approximate the general occurrence of springs in the area including Coso Springs. The springs are generally present in fractured bedrock near alluvium/bedrock contacts. The recharge area generally consists of exposed fractured bedrock that surrounds the alluvial basins. Geologic structures such as granodiorite dikes and historic faults facilitate the formation of springs by preferentially controlling fractures and groundwater flow. Groundwater associated with these springs is generally high quality potable water. Springs are generally small in extent and persist all year. Most of these springs produce limited surface water flow and create a wetland or riparian zone associated with saturated soils. The springs in the area produce small, localized effects, with much of the water lost to either evaporation or infiltration into the adjacent alluvium.

The town of Darwin water use and supply information was provided to Glenn Harris (Glenn Harris, 2000b) by Steve Reese, Darwin Community Services District. The town of Darwin includes 63 parcels, which share an allocation of 10 gallons per minute (gpm), or 16 acre-feet per year, from Coso Springs. The town currently uses only about 8 gpm on average, or 12.8 acre-feet per year. Coso Springs is reported to flow at 17 gpm (27.4 acre-feet per year) of which 7 gpm (11.2 acre-feet per year) is allocated for riparian maintenance at the spring site.



### **3.0 LOWER CENTENNIAL FLAT WATER RESOURCES**

The Lower Centennial Flat parcel is located in Section 2 Range 39E Township 19S. The parcel is located in the Lower Centennial Flat drainage, which drains to the northwest into Owens Lake. The site is located between 4800 and 5000 feet in elevation. The nearest freshwater occurrence to the site is at Black Springs located approximately 4 miles southwest of the site area at an elevation of about 5800 feet. Black Springs has historically supplied a cattle trough located in the vicinity of the property via a gravity driven 1.25-inch diameter pipeline at a flow of about 2 to 5 gpm (Glenn Harris, 2000b).

The parcel is approximately 10 miles west-northwest from the town of Darwin and 13 miles north-northwest from Coso Springs. Surface geologic maps (Jenning, 1958) indicate that the Lower Centennial Flat drainage system is separated from the Darwin drainage area by a low ridge of granitic and metamorphic bedrock trending north-south to an elevation of about 6000 feet. The bedrock ridge effectively separates the Lower Centennial Flat alluvial drainage from the Darwin alluvial drainage. The two separate drainage basins approximate two separate groundwater basins. Groundwater in the Darwin basin is expected to flow toward Darwin Canyon and ultimately into Panamint Valley. Groundwater in the Lower Centennial Flat basin is expected to flow to Owens Lake.

Inspection of the drilling log (Navy, 1999) for the well drilled on Lower Centennial Flat indicated that a 1000-foot deep borehole was completed November 24, 1999. The bore hole was then back filled with 270 feet of gravel and the upper 730 feet of borehole was completed as a gravel packed monitoring well. The 4-inch diameter steel monitoring well was screened from 609 feet to 709 feet. Lithology listed in the boring log consisted predominately of sand and gravel to a depth of 580 feet and then gravel and shale from 580 feet to 1000 feet. The mud rotary drill rig lost mud circulation at depths of 630, 655, and 670 feet. Interpretation of the lithology and drill rig circulation data suggests that an alluvium/fractured bedrock contact occurs at about 580 feet and that the fractured bedrock at depths of about 630, 655, and 670 have the ability to rapidly transport and store fluids. Well development activities occurred on June 9, 2000 and reported a well yield of 5gpm (8 acre-feet per year) and a non-pumping water depth to water of 620 feet from top of casing. A field inspection of the Lower Centennial Flat parcel area located the monitoring well. The well was secured with a lock and protected by an above ground metal stovepipe well case and two steel crash posts.

The relationship between groundwater extraction from the alluvium and fractured bedrock underlying the parcel and Black Spring located 4 miles away is uncertain and can not be established with the limited data generated from the recently installed well. If there is a relationship between these resources, it is



expected to be insignificant given the large recharge areas associated with the exposed fractured granitic bedrock and the relatively small groundwater extraction rates. Additional information such as aquifer flow rates, steady state pumping groundwater levels, and regional aquifer water level trends need to be determined to further evaluate water resource development and possible effects on spring flows upgradient from the parcel. The preliminary results from the well installation and development allow us to conclude that groundwater is present beneath the parcel. However, with the limited amount of available information we cannot with certainty predict whether there is sufficient supply to support the 6.2 gpm (10 acre-feet per year) necessary for development of the parcel.



## **4.0 CONCLUSIONS**

The town of Darwin's water supply source is Coso Springs and it occurs in the Darwin drainage system. The Darwin drainage system is separated from the Lower Centennial Flat drainage system by a low ridge of granitic rock. The two separate drainage systems approximate two separate groundwater drainage basins. Groundwater resource development at the Lower Centennial Flat parcel is not expected to have a significant effect on Coso Springs because each occurs in a separate groundwater flow basin.

Other general factors that support the conclusion that groundwater resource development at the Lower Centennial Flat parcel will not effect Coso Springs is the 13 miles of separation between the two locations and the relatively low 6.2 gpm (10 acre-feet per year) of groundwater resource development identified for the Lower Centennial Flat parcel.



## 5.0 REFERENCES

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Glenn Harris, 2000b. Personal communication with Buck King during telephone conference on July 14, 2000.

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Jenning C.W., 1958. Geologic Map of California, Death Valley Sheet. California Division of Mines and Geology, Scale 1:250000.

Earth Science Consultants, 1994. Draft Final Study of 31 Native Springs within the China Lake Test Ranges, China Lakes Naval Air Weapons Station, California. Report prepared by for Naval Air Weapons Station, China Lake. January 29.

### 5.1 List of Preparers

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## **APPENDIX W**

**HECTOR VILLALOBOS (BLM); TOM BELLINGER (BOR),  
RESULTS OF RECENT CENTENNIAL PARCEL  
WELL BAILING OPERATIONS AS RELATED TO THE  
TIMBISHA SHOSHONE HOMELAND**



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# United States Department of the Interior



## BUREAU OF LAND MANAGEMENT

Ridgecrest Field Office  
300 S. Richmond Rd  
Ridgecrest, California 93555  
[www.ca.blm.gov](http://www.ca.blm.gov)  
November 2, 2000



In Reply Refer To:  
1792 (N)  
CA-650.21

### Memorandum

To: Field Manager, Ridgecrest Field Office, Bureau of Land Management

To: Regional Director, Pacific Region, National Park Service

Subj: Timbisha Homeland - Water at Centennial parcel

Based on the recommendation of Mr. Tom Bellinger, Hydrologist for the Department of Reclamation (D-8520), regarding the availability of water at the Centennial parcel of the project, the Bureau of Land Management has terminated exploration for a reliable groundwater supply in that area.

The Bureau of Land Management will identify other suitable land parcels, as provided for in the legislation, with the Timbisha Tribe, National Park Service and other interested parties.

If you have any questions please call Ahmed Mohsen at (760) 384-5421.

Sincerely,

Hector Villalobos  
Field Manager

cc: BOR, Bellinger  
NPS, DeGraff



September 7, 2000

Memorandum

To: Bureau of Land Management, California State Director, Sacramento, CA

From: Thomas R. Bellinger, Hydrologist, Bureau of Reclamation Technical Service  
Center, Denver, CO

Subject: Results of Recent Centennial Parcel Well Bailing Operations as Related to the  
Timbisha Shoshone Homeland Negotiations

Recently Bureau of Reclamation (Reclamation) personnel from Yuma, AZ and Boulder City, NV performed a bailing operation on the Centennial Parcel well located just northwest of the town of Darwin, California. The well was originally drilled by the U.S. Navy Seabees based out of Port Hueneme, CA as a training exercise, and overseen by Reclamation.

Initially, the well was to be drilled to 1000 feet. However, due to complications on site, the well was drilled and cased to approximately 720 feet. An initial water level was observed after drilling of 218 feet below ground level. The water level in the well dropped continuously over the next several months and eventually settled at approximately 618 feet in August 2000. Navy personnel bailed the well and a pump test was planned for a later date. However, due to a large amount of drilling mud still present in the well, Reclamation decided to perform a second bailing operation and attempt to determine the feasibility of a pump test.

The second bailing operation was completed by Reclamation in August 2000. Very little inflow or response from the aquifer was observed at that time. Based on this information, Reclamation field personnel indicated that there might not be an adequate supply for Tribal development at the well's current depth. Earlier observed inflow responses were probably due to drilling liquid returning to the hole.

As a result of these observations, it is suggested that the Tribe and BLM terminate exploration for a reliable groundwater supply at Centennial and concentrate their efforts on exploring for other nearby parcels or sources of water.

The decision for the best course of action will lie with the participating negotiation teams.



If you have any concerns or questions, please contact Thomas Bellinger at (303)445-2528 or [tbellinger@do.usbr.gov](mailto:tbellinger@do.usbr.gov).

cc:

Barbara White, Reclamation NAAO (W-6100)

Darrell Ewing, Reclamation, NAAO (D-6100)

Dennis Watt, Reclamation Boulder City (LC-2707)

Russ Phelps, Reclamation Yuma Area Office (YAO-4000)







**APPENDIX X**

**MOHAVE GROUND SQUIRREL INVESTIGATION,  
LOWER CENTENNIAL FLAT, INYO CO., CALIFORNIA**









June 28, 2000

49179 5

Ms. Joan DeGraff  
National Park Service  
Mojave National Preserve  
222 East Main, Suite 202  
Barstow, California 92311

**Mohave Ground Squirrel Investigation  
Lower Centennial Flat,  
Inyo County, California**

Dear Ms. DeGraff:

This letter summarizes the methods and results of a field investigation for Mohave Ground Squirrel (*Spermophilus mohavensis*) conducted by Harding ESE at Lower Centennial Flat in Inyo County, California. The survey was conducted to document presence or a lack of evidence of presence of Mohave ground squirrel (MGS) at a parcel of land known as the Centennial Parcel, on Lower Centennial Flat. This parcel is being considered for transfer from the Bureau of Land Management (BLM) to the Secretary of Interior to be held in trust for the Timbisha Shoshone Indian Tribe. This transfer is part of a legislative action mandating the transfer of several parcels in California and Nevada, as well as directing BLM and the National Park Service to negotiate agreements allowing cooperative activities to be conducted by the Tribe on federal lands.

This survey was conducted to provide data in support of the analysis of environmental consequences of the legislative action. A draft (legislative) Environmental Impact Statement (LEIS) has been prepared and is being updated to reflect current conditions. It is anticipated that results of this survey will be incorporated into the final LEIS for purposes of public review and to receive guidance on requirements to achieve compliance with relevant federal and state laws.

## **INTRODUCTION**

MGS is a small, diurnal mammal inhabiting alkali sink, creosote bush scrub and Joshua tree woodland of the lower sonoran life zone in the Mojave Desert<sup>1</sup>. MGS adults are approximately 9 inches long, excluding a 2-4 inch tail. They are relatively pale, yellowish-brown to cinnamon and uniform in color on their dorsal surface with no stripes or spots. The ventral surface (belly) is whitish. The tail is usually darker than the body. The body of this squirrel is rounded and stocky.

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<sup>1</sup> Mammals of the Pacific States, Ingles, L.G.





June 28, 2000

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Ms. Joan DeGraff

National Park Service

Mojave National Preserve

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Harding Lawson Associates

MGS is typically active during late spring and early summer. It emerges from its burrow between mid-February and May depending on climatic conditions and local features (plant community, elevation, temperature range). This species actively feeds and reproduces during the short period of spring and early summer when conditions are optimal. It retreats into its burrow to estivate during the hot summer months, and to hibernate during the winter, usually not re-emerging until the following spring. MGS may wake and eat intermittently during these inactive periods.

The range of MGS is from northeastern Los Angeles County, in the vicinity of the cities of Lancaster and Palmdale, includes portions of eastern Kern and San Bernardino counties, and extends northward into southwestern Inyo County in the vicinity of Owens Valley and Centennial Flat. The Centennial Parcel roughly coincides with the northern limit of MGS' range.

## METHODS

This investigation included a limited literature review and a visual survey of the 640-acre Centennial Parcel. The California Natural Diversity Data Base (CNDDDB) was consulted to identify nearest recorded occurrences for the Mohave ground squirrel in relation to the parcel. CNDDDB records reveal an occurrence of MGS at Centennial Flat in 1989, approximately 2 miles south-southwest of the parcel being studied.

A field survey for MGS was conducted by Harding ESE biologists on June 21 and June 22, 2000. The survey consisted of a site walkover following transect lines spaced approximately 100 feet apart, crossing the parcel in a northeast-to-southwest direction. In addition, a spotting scope with a 60x lens and 8x42 binoculars were used to scan the site. Surveys were begun each day at approximately 0600 and continued until air temperature exceeded the preferred activity range for MGS (approximately 95°F). The survey was suspended when air temperature reached 100°F during the early afternoon, and resumed when air temperature dropped below 95°F. Surveys continued until 1 hour before sunset (approximately 1930). The entire 640-acre parcel was walked at approximately 100 foot intervals during the course of the 2-day survey. Conditions at the time of the survey were hot, clear and with calm winds with the exception of the late afternoon of June 21 when clouds built up, resulting in cooler, overcast conditions with variable breezes. Temperatures ranged from approximately 75°F in the early morning to over 100°F at peak afternoon heat.

All vertebrate wildlife observed during the 2-day survey was recorded in field notes, including location, time of day, and plant community. Detailed data on vegetation type was not recorded, but is available in the Vegetation section of the draft LEIS. A brief description of plant communities on the Centennial Parcel is provided below.

## VEGETATION COMMUNITIES

Vegetation communities identified on the project site consist mainly of Joshua tree (*Yucca brevifolia*) woodland, white bursage (*Ambrosia dumosa*), brittlebrush (*Encelia farinosa*), and shadscale (*Atriplex confertifolia*). Joshua tree woodland is typically seen in this region at the higher elevations with



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shrubby perennials and desert scrub occurring at lower elevations. The southern half of the project site supports an extensive stand of Joshua Tree woodland. Approximately 15 percent of the reproductive-age Joshua trees were observed to be in fruit at the time of the survey. Centennial Flat slopes downward to north, and the Joshua tree woodland becomes less dense, giving way to shadscale scrub. The limit of Joshua tree on Centennial Flat is near State Route 190, approximately 0.8 miles north of the Centennial Parcel.

## **WILDLIFE**

Over the course of the 2-day survey, two Mohave ground squirrels were observed. The first was at 1730 on June 21 in the southeast quarter of the site. This individual was observed for a short period of time and photographed with a telephoto zoom lens to limit disturbance. Based on its size and behavior it appeared to be a young individual and appeared to be in good health. Air temperature was recorded at 88°F and relative humidity was approximately 25 percent. Plate 2., Photograph 1. provides a photographic record of this observation..

A second MGS observation occurred at approximately 0930 the morning of June 22. This observation was of an adult MGS, also foraging on Joshua tree fruit. Air temperature was 90°F with clear skies and no wind at the time of the observation. The location of the observation was approximately ¼ mile north-northwest of the June 21 sighting, and was clearly a separate individual. This individual was much larger than the first specimen and appeared to be an adult. Plate 2. Photograph 2. Provides a photographic record of this observation.

The field survey was ended at 1200 on June 22 with no additional MGS observations.

Other wildlife species directly observed during the course of the survey included white-tailed antelope squirrel, black-tailed jackrabbit, desert woodrat, sagebrush lizard, Le Conte's thrasher, loggerhead shrike, mourning dove, ash-throated flycatcher, western kingbird, common raven and black-throated sparrow. Table 1 provides a listing of vertebrate wildlife directly or indirectly observed on Centennial Parcel during the survey.

## **Discussion**

The field survey resulted in documentation of MGS at the Centennial Parcel. Although only 2 individual MGS were observed, approximately 80 percent of the parcel (estimated over 500 of the 640 acres) consists of habitat with similar characteristics to areas where MGS was observed, and therefore may support this species. A detailed survey, including trapping to census this population would be necessary to fully assess the size and geographic limits of this population on Centennial Flat. Such a study is beyond the scope of the current effort but may be appropriate at a future time.

Harding ESE appreciates the opportunity to be of continued service to the National Park Service. If you have questions regarding the methods or results of this survey, please call Eric Tattersall at (415) 884-3156 or Brett Daniels at (415) 884-3191.



June 28, 2000

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Ms. Joan DeGraff

National Park Service

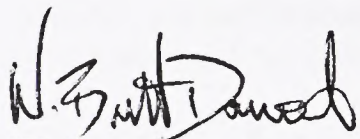
Mojave National Preserve

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**Harding Lawson Associates**

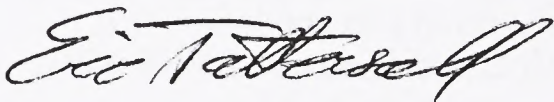
Yours very truly

**HARDING ESE, a MACTEC Company**



W. Brett Daniels

Staff Environmental Scientist



Eric D. Tattersall

Associate Environmental Scientist

BD/ET:yo/YO556241-NPS-Timbisha:

Attachments: Table 1  
Plate 1  
Plate 2

cc: Harding ESE files



**Table 1. Observed Wildlife  
Lower Centennial Flat  
Inyo County, California**

CLASS			
FAMILY <sup>1</sup>			
<i>Scientific name</i> <sup>2</sup>	Common name	Notes	
<b>MAMMALS</b>			
CANIDAE - Dogs, Foxes			
<i>Canis latrans</i>	coyote	scat and prints	
SCIURIDAE - Squirrels			
<i>Ammospermophilus leucurus</i>	antelope ground squirrel		
<i>Spermophilus mohavensis</i>	Mohave ground squirrel		
CRICETIDAE - Mice, Rats, Voles			
<i>Dipodomys deserti</i>	desert kangaroo rat		
<i>Neotoma lepida</i>	desert woodrat		
LEPORIDAE - Hares, Rabbits			
<i>Lepus californicus</i>	black-tailed jackrabbit		
EQUIDAE - Horses			
<i>Equus caballus</i>	wild mustang	scat and prints	
<i>Equus assinus</i>	burro	scat and prints	
COLUMBIDAE - Doves			
<i>Zenaida macroura</i>	mourning dove		
TYRANNIDAE - Tyrant Flycatchers			
<i>Myiarchus cinerascens</i>	ash-throated flycatcher		
<i>Tyrannus verticalis</i>	western kingbird		
LANIIDAE - Shrikes			
<i>Lanius ludovicianus</i>	loggerhead shrike		
CORVIDAE - Crows, Jays			
<i>Corvus corax</i>	common raven	dead specimen	
MIMIDAE - Thrashers			
<i>Toxostoma locontei</i>	Le Conte's thrasher		
EMBERIZIDAE - Orioles, Sparrows, Wood Warblers			
<i>Amphispiza bilineata</i>	black-throated sparrow		



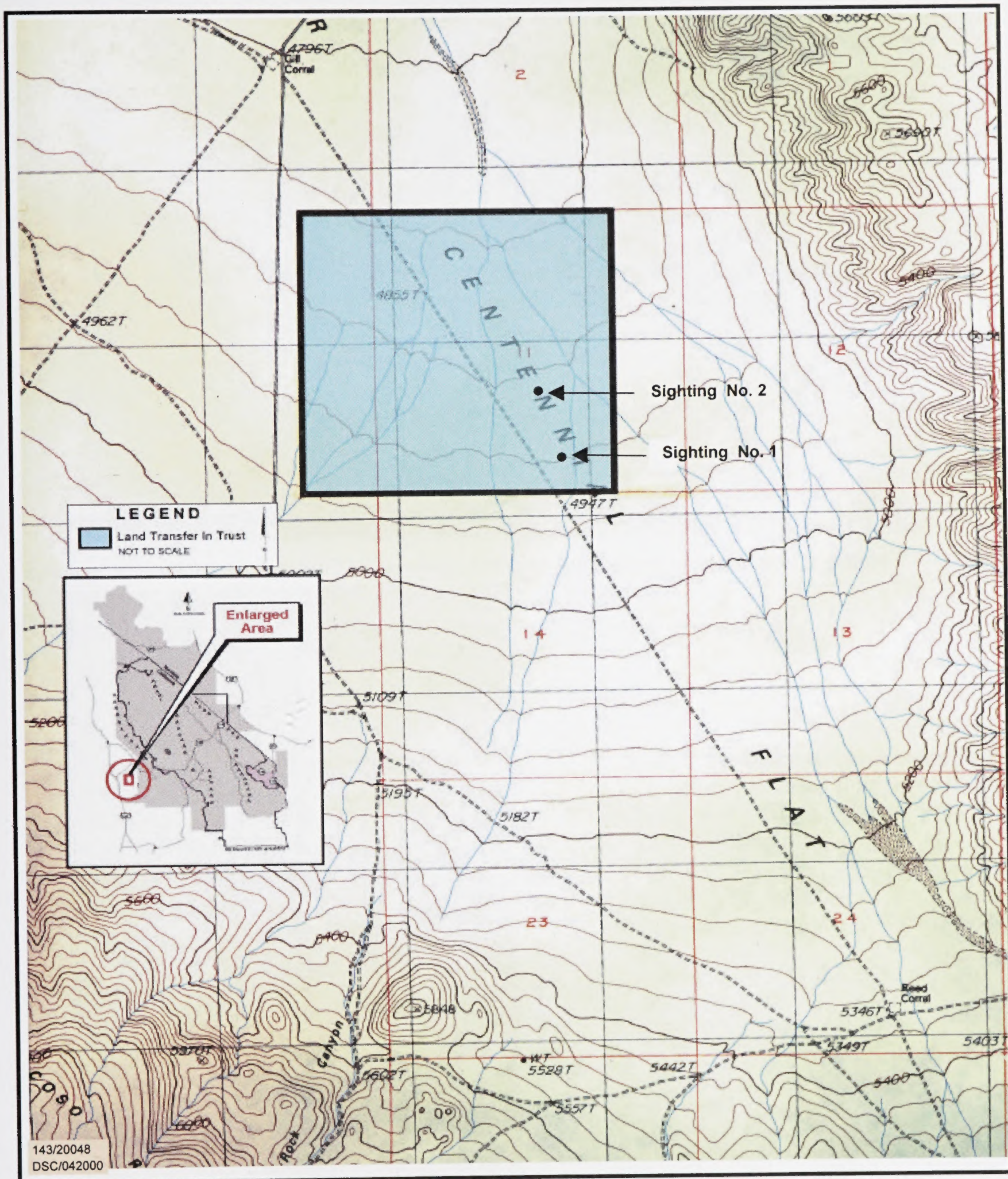
**Table 1. Observed Wildlife  
Lower Centennial Flat  
Inyo County, California**

CLASS		
FAMILY <sup>1</sup>		
<i>Scientific name</i> <sup>2</sup>	Common name	Notes
IGUANIDAE - Iguanids		
<i>Gambelia wislizeni</i>	long-nosed leopard lizard	
<i>Sceloporus magister magister</i>	desert spiny lizard	
<i>Sceloporus graciosus</i>	sagebrush lizard	
<i>Uta stansburiana</i>	side-blotched lizard	
<i>Phrynosoma platyrhinos calidiarum</i>	desert horned lizard	
TEIIDAE - Whiptails and Their Allies		
<i>Cnemidophorus tigris tigris</i>	great basin whiptail	

Footnotes

1. Families presented in phylogenetic order (AOU, 1983; Stebbins, 1985; Burt, 1976).
2. Scientific names presented in alphabetic order (by genus) within each family represented.





**Harding  
Lawson  
Associates**

**Mohave Ground Squirrel Investigation,  
Centennial Flat, California**

Source: Bureau of Land Management, 2000  
Map Reference: USGS, Talc City Hills California -  
Inyo County, California, 7.5 min. quad topo 1987  
Timbisha Shoshone Homeland

Plate

**1**





**Photograph 1. Mohave Ground Squirrel Foraging**

**Photograph 2. Mohave Ground Squirrel Resting in Joshua Tree**



**Harding Lawson Associates**

Engineering and  
Environmental Services

PHOTOGRAPHER  
BD

JOB NUMBER  
49179.2

DATE OF PHOTOGRAPHY  
6/21/00

Plate  
**2**  
REVISED DATE  
6/26/00



**APPENDIX Y**

**DESERT TORTOISE SURVEY  
DEATH VALLEY JUNCTION, INYO CO., CALIFORNIA**







**Desert Tortoise Survey  
Death Valley Junction  
Inyo County, California**

Prepared for

**National Park Service**  
Mojave National Preserve  
222 East Main, Suite 202  
Barstow, California 92311

HLA Project No. 49179 4



**Harding Lawson Associates**  
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**Desert Tortoise Survey  
Death Valley Junction  
Inyo County, California**

HLA Project No. 49179 4

This document was prepared by Harding Lawson Associates at the direction of the National Park Service for the sole use of National Park Service the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of the National Park Service. This report and the interpretations, conclusions, and recommendations contained within are based in part on information presented in other documents that are cited in the text and listed in the references. Therefore, this report is subject to the limitations and qualifications presented in the referenced documents.

**Draft**

YO56275-N PS  
August 29, 2000

**Harding Lawson Associates**

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EXECUTIVE SUMMARY .....	iv
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2.0 METHODS .....	2
3.0 VEGETATION COMMUNITIES .....	10
4.0 WILDLIFE .....	11
5.0 DISCUSSION .....	12
6.0 REFERENCES .....	13

## TABLES

- 1 Observed Wildlife

## PLATES

- 1 Regional Site Location Map
- 2 Mojave Desert Tortoise Survey

## APPENDIXES

- A DAILY FIELD LOG FOR DEATH VALLEY JUNCTION SURVEY EFFORT

## DISTRIBUTION



## EXECUTIVE SUMMARY

This report summarizes the results of a field investigation for Mojave Desert Tortoise (*Xerobates agassizii*) conducted by Harding ESE at Death Valley Junction, Inyo County, California. The survey was conducted to document presence or a lack of evidence of presence of Mojave Desert Tortoise (MDT) at a parcel of land known as Death Valley Junction located east of Death Valley National Park. This parcel is being considered for transfer from the Bureau of Land Management (BLM) to the Secretary of Interior to be held in trust for the Timbisha Shoshone Indian Tribe. This transfer is part of a legislative action mandating the transfer of several parcels in California and Nevada, as well as directing BLM and the National Park Service to negotiate agreements allowing cooperative activities to be conducted by the Tribe on federal lands.

This survey was conducted to provide data in support of the analysis of environmental consequences of the legislative action. A draft (legislative) Environmental Impact Statement (LEIS) has been prepared and is being updated to reflect current conditions. It is anticipated that results of this survey will be incorporated into the final LEIS for purposes of public review and to receive guidance on requirements to achieve compliance with relevant federal and state laws.

**Draft**

YO56275-N PS  
August 29, 2000

**Harding Lawson Associates**

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## 1.0 INTRODUCTION

MDT is a completely terrestrial desert species, requiring firm, but not hard, friable soils for construction of burrows (in banks of washes, arroyos or sandy hummocks); adequate ground moisture for survival of eggs and young; and herbs, grasses and cacti for food. MDT is typically active from early spring (February to March) depending on climatic conditions and local features (plant community, elevation, temperature range) through October and November (*Stebbins, 1985*). This species actively feeds and reproduces during the short period of spring and early summer when conditions are optimal. It retreats into its burrow to aestivate during the hot summer months. During the peak summer months, it spends the majority of its time underground in its burrow emerging only during cooler periods or summer thundershowers to forage or drink. MDT hibernates during the winter, usually not re-emerging until the following spring, it occasionally surfaces during the winter to bask at the entrance of its burrow on although warm days. It is frequently found in and around desert oases, riverbank's, washes, dunes and occasionally rocky slopes and foothills. Creosote bush (*Larrea tridentata*) is often a component of its habitat and MDT palettes (shallow resting burrows, usually not subterranean) are frequently found at the base of these desert shrubs. MDT burrows have a dome-shaped opening (roughly coinciding with the shape of the tortoise's carapace), flat bottom, and may extend up to 30 feet underground in the case of burrows used for aestivation or hibernation (*Berry, 1990*). Palettes are utilized throughout the year while foraging or moving about its territory.

MDT ranges from Nye County, Nevada, and southwest Utah to northern Sinaloa (Mex.); southwest Arizona (Rincon Mts., Pima Co.) west to the Mojave Desert and the eastern side of Salton Basin, California, from sea-level to around 4000 ft (*Stebbins, 1985*).



## 2.0 METHODS

This investigation included a limited literature review, inquiries with the California Natural Diversity Database (CNDDB) and field survey of the 1000-acre Death Valley Junction Parcel. The parcel lies east of Funeral Mountains on an alluvial fan at an elevation of between 2052 and 2120 feet above sea level. The parcel transected by California State Route (SR) 190, which enters Death Valley National Park east of Furnace Creek. SR 127 forms a portion of the eastern boundary of this parcel. The Amargosa Opera House borders the parcel along the southeastern side along with several private inholdings and residences.

The field survey for MDT was conducted by Harding ESE biologists and assisted by biologists (please see Attachment A, for a resume and list of qualifications) from Southern Nevada Environmental Inc from August 3, through August 7, 2000. The survey consisted of a site walkover following transect lines spaced approximately 50-100 feet apart, crossing the parcel in a north to south direction for a distance of 1 mile. Although the entire site was surveyed, those areas exhibiting habitat that could potentially support MDT (stands of creosote bush, washes, levees, and the sections of the old railroad grade occurring onsite) were surveyed more intensively. Differentially corrected GPS (Global Positioning System), compass, and a 7.5 minute USGS topographical map of Death Valley Junction were used to maintain distance and heading along each transect line and to record any sign of presence of MDT on site. In addition, a spotting scope with a 60x lens and 8x42 binoculars were used to scan the site and roadway (California SR 190), which bisects the site, during the early morning (when MDT would most likely be above ground) and late afternoon hours. The entrances and aprons to any burrows or underground retreats found were examined for signs of tortoise (scat, eggshell remains, or tracks). Small handheld signal mirrors were used to illuminate and examine the inside entrance and throat of burrows as far down the burrow as was feasible. In an effort to minimize disturbance to any species that might be



utilizing the burrow the examination time was limited to approximately 1 to 2 minutes. Surveys were begun each day at approximately 0530 and continued until 1230-1300 in the afternoon when air temperature exceeded 115°F. Surveys were resumed at approximately 1700 and continued until just before sunset (approximately 1930). The entire 1000-acre parcel was examined by transects at 50-100 foot intervals during the course of the survey. Field surveys included the zone of influence or perimeter areas that bordered the site with the exception of the private inholdings of the opera house and residences at the eastern boundary of the parcel. The zone of influence survey consisted of spacing biologists out from the border of the parcel at 100', 300', 600', 1200' and 2400' intervals and making a complete circuit around the parcel, avoiding the private landholdings, and noting any additional evidence of presence of MDT in the area. Conditions at the time of the survey were hot and clear with calm winds. Temperatures ranged from approximately 65°F in the early morning to over 115°F at peak afternoon heat. Vertebrate wildlife observed during the survey was recorded in field notes, including location, time of day, and plant community. Detailed data on vegetation type was not recorded, but is available in the Vegetation section of the draft LEIS. A brief description of plant communities on the Death Valley Junction Parcel is provided below.



### 3.0 VEGETATION COMMUNITIES

Vegetation communities identified on the project site consist mainly of shadscale scrub with transitions to Mojave creosote scrub. Scattered stands of honey mesquite (*Prosopis glandulosa* var. *torreyana*) occur adjacent to SR 127. Dominant shrub species observed include shadscale, allscale, fourwing saltbush, burro-weed, and alkali sea-blite. A scattered stand of *tamarisk* (*Tamarisk ramassissima*) occurs north of SR 190 just west of SR 127. Annual and perennial herbaceous species observed included spiny herb, tansy mustard, shredding evening primrose (*Camassonia boothii condensata*), and Russian thistle (*Salotla tragus*.)



## **4.0 WILDLIFE**

Over the course of the survey, no MDT or evidence of presence of MDT was observed. Other wildlife species directly observed during the course of the survey included white-tailed antelope squirrel, desert kitfox, black-tailed jackrabbit, desert woodrat, sagebrush lizard, mourning dove, ash-throated flycatcher, western kingbird, common raven and black-throated sparrow. Several active kitfox dens were found adjacent to the levees and the old railroad grade located in the south-central portion of the parcel. A kitfox was observed at the eastern boundary of the site, immediately adjacent to State Route 127, on the evening of August 5<sup>th</sup> and was apparently struck by a car as it attempted to cross the roadway. Table 1 provides a listing of direct and indirect vertebrate wildlife observations at the Death Valley Junction Parcel during the course of this survey.



## **5.0 DISCUSSION**

The field survey resulted in no documentation of MDT at the Death Valley Junction Parcel. The California Natural Diversity Database (CNDDDB) was consulted to identify nearest recorded occurrences for the Mojave Desert Tortoise in relation to the parcel. CNDDDB records reveal an occurrence of MDT at Tecopa Pass approximately 35 miles to the southeast of Death Valley Junction.

Approximately 35-40% of the parcel contains marginally suitable habitat for MDT. The lack of burrows or palettes, limited forage base and lack of any additional evidence (sightings, remains, scat or courtship rings) suggests any occurrence of this species on the Death Valley Junction parcel would be accidental or transitory.



## 6.0 REFERENCES

Berry, Kristin H. *Commonly Asked Questions About The Desert Tortoise and Answers*. Tortoise Tracks, Vol. 11, No. 1, 1990.

Stebbins, Robert C. *Western Reptiles and Amphibians*, 2nd edition. Boston, Massachusetts: Houghton Mifflin Co. 1985



## **TABLES**



**Table 1. Observed Wildlife  
Death Valley Junction  
Inyo County, California**

CLASS FAMILY <sup>1</sup> <i>Scientific name</i> <sup>2</sup>	Common name	Notes
<b>MAMMALS</b>		
CANIDAE - Dogs, Foxes <i>Canis latrans</i> <i>Vulpes macrotis</i>	coyote desert kitfox	scat and prints dead specimen
SCIURIDAE - Squirrels <i>Ammospermophilus leucurus</i>	antelope ground squirrel	Observed
CRICETIDAE - Mice, Rats, Voles <i>Dipodomys deserti</i> <i>Neotoma lepida</i>	desert kangaroo rat desert woodrat	Observed Observed
LEPORIDAE - Hares, Rabbits <i>Lepus californicus</i>	black-tailed jackrabbit	Observed
EQUIDAE - Horses <i>Equus caballus</i> <i>Equus assinus</i>	wild mustang burro	Observed foraging scat and prints
<b>BIRDS</b>		
COLUMBIDAE - Doves <i>Zenaida macroura</i>	mourning dove	Observed
ARDEIDAE - Herons, Egrets <i>Nycticorax nycticorax</i>	Black-crowned Night-Heron	Observed at boundary
THRESKIORNITHIDAE - Ibis <i>Plegadis chihi</i>	White-faced Ibis	Observed at boundary
TYRANNIDAE - Tyrant Flycatchers <i>Myiarchus cinerascens</i> <i>Tyrannus verticalis</i>	Ash-throated Flycatcher western kingbird	Observed Observed at boundary
CORVIDAE - Crows, Jays <i>Corvus corax</i>	common raven	Observed
EMBERIZIDAE - Orioles, Sparrows <i>Amphispiza bilineata</i> <i>Amphispiza belli</i>	Black-throated Sparrow sage sparrow	Observed Observed



**Table 1. Observed Wildlife  
Death Valley Junction  
Inyo County, California**

CLASS		
FAMILY <sup>1</sup>		
<i>Scientific name</i> <sup>2</sup>	Common name	Notes
<b>REPTILES</b>		
IGUANIDAE - Iguanids		
<i>Gambelia wislizenii</i>	long-nosed leopard lizard	Observed/hatchlings
<i>Uta stansburiana</i>	side-blotched lizard	Observed
<i>Phrynosoma platyrhinos</i>	desert horned lizard	Observed
<i>Callisaurus draconoides</i>	zebra-tail lizard	Observed
TEIIDAE - Whiptails and Their Allies		
<i>Cnemidophorus tigris tigris</i>	great basin whiptail	Observed
COLUBRIDAE - Kingsnakes, Ratsnakes		
<i>Masticophis flagellum</i>	coachwhip	shed skin
VIPERADAE - Rattlesnakes		
<i>Crotalus cerastes cerastes</i>	Mojave Desert sidewinder	Observed

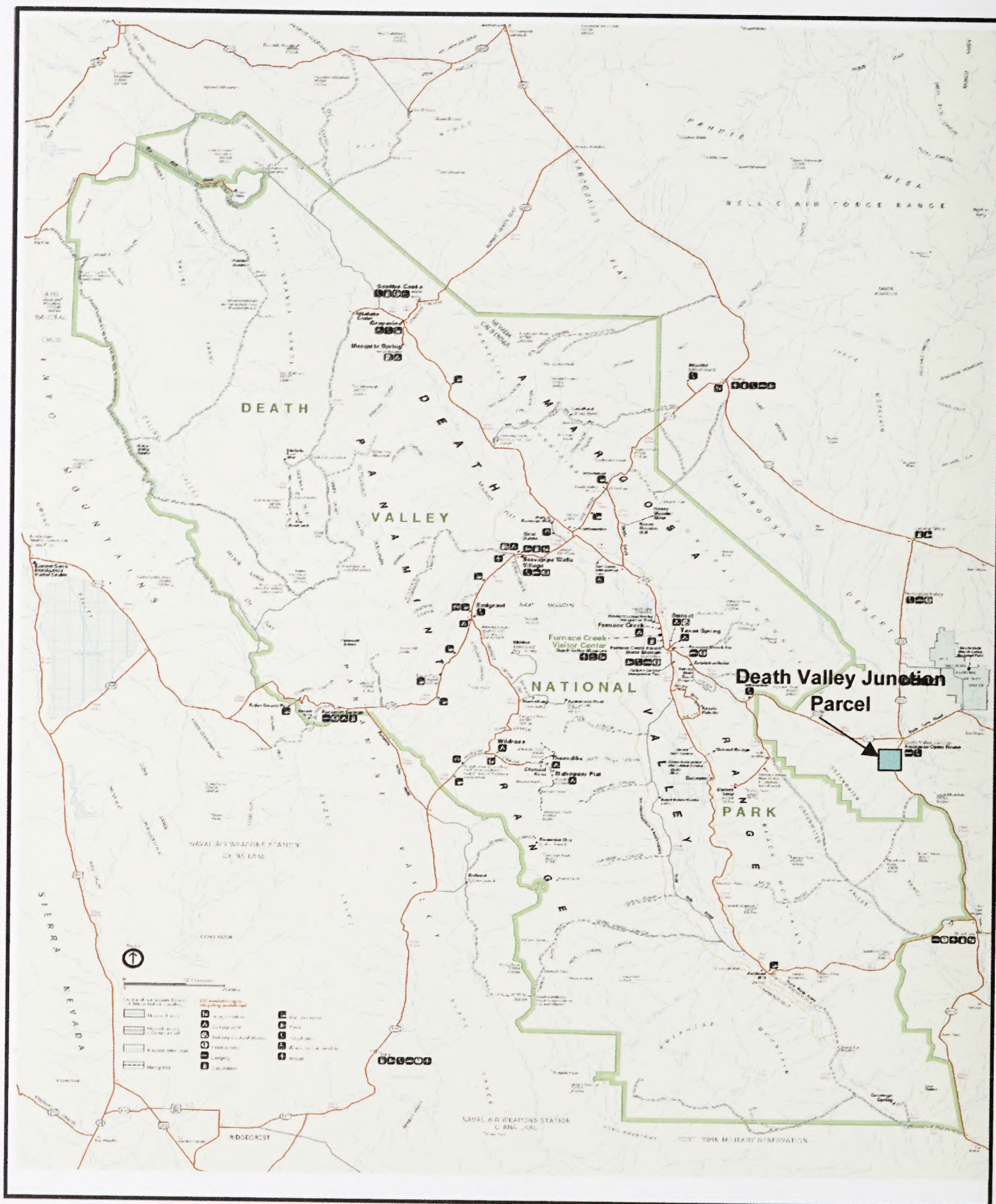
Footnotes

1. Families presented in phylogenetic order (AOU, 1983; Stebbins, 1985; Burt, 1976).
2. Scientific names presented in alphabetic order (by genus) within each family represented.

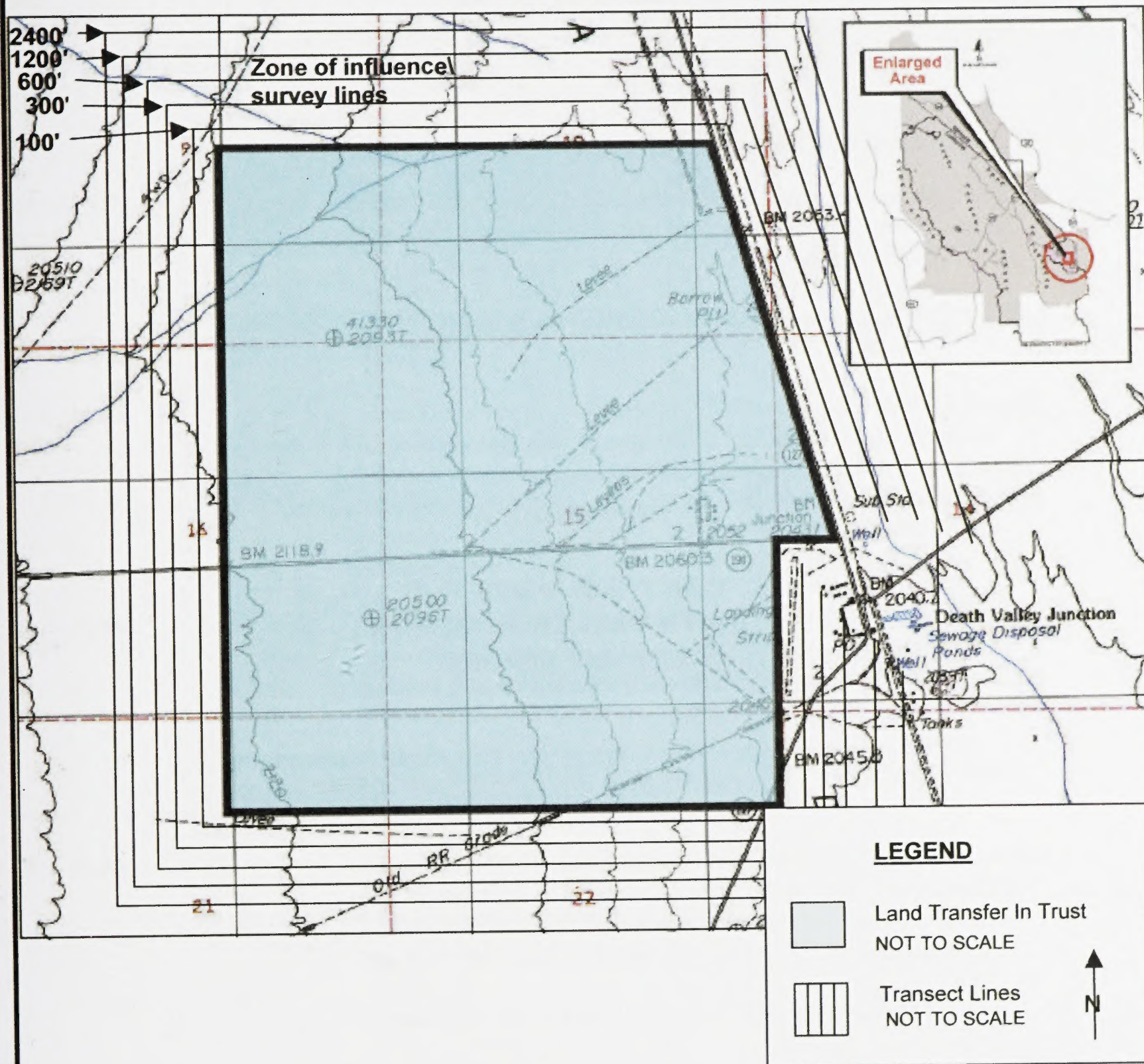


## **PLATES**









143/20047  
DSC/042000



**Harding  
Lawson  
Associates**

**Mojave Desert Tortoise Survey  
Death Valley Junction, California**

Source: Bureau of Land Management, 2000

Reference: USGS, Death Valley Junction California -  
Nevada, 7.5 min. quad topo 1987

Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Plate  
**2**



**APPENDIX A**

**DAILY FIELD LOG FOR  
DEATH VALLEY JUNCTION  
SURVEY EFFORT**



**APPENDIX A**  
**DAILY FIELD LOG FOR**  
**DEATH VALLEY JUNCTION**  
**SURVEY EFFORT**

<u>Date</u>	<u>Daily Field Log for Death Valley Junction Survey Effort</u>
08/04/2000	Start Time: 0530. Temperature: 82°F, surveying western section of parcel, creosote dominate, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, and Jenith Ziegler. Stop Time: 1300. Temperature: 120°F. Evening survey; resume 1730. Temperature: 112°F. Stop Time: 1950. Temperature: 102°F.
08/05/2000	Start Time: 0515. Temperature: 79°F surveying western section of parcel, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, and Jenith Ziegler. Stop Time: 1330. Temperature: 118°F. Evening survey; resume 1715. Temperature: 115°F. Stop Time: 2000. Temperature: 100°F.
08/06/2000	Start Time: 0500. Temperature: 68°F surveying center section, zone of influence and southern section of parcel; levees, and railroad grade biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, and Jenith Ziegler. Stop Time: 1230. Temperature: 118°F. Evening survey; resume 1700. Temperature: 115°F. Stop Time: 2000. Temperature: 105°F.
08/07/2000	Start Time: 0500. Temperature: 70°F finishing eastern section of parcel and zone of influence, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre and Jenith Ziegler. Stop Time: 0915. Temperature: 105°F. Demobilize and remove flagging and boundary markers



**APPENDIX B**

**SOUTHERN NEVADA ENVIRONMENTAL INC. BIOLOGIST'S RESUMES**



**NAME:** Paul Aguirre

**SNEI TITLE:** Wildlife Biologist

**YEARS WITH SNEI:** 1 year

**EDUCATION:** Masters of Science, Southwest Texas State University, Biology, May 1999

**CERTIFICATION & TRAINING:** Qualified Desert Tortoise Biologist

**AFFILIATIONS:** Member Wildlife Society

**Summary of Experience:**

Mr. Aguirre has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. His project experience includes: the Southern Nevada Water Authority's Treatment and Transmission Facility located in the Lake Mead National Recreation Area in Clark County, Nevada; the FTV western Build Fiber Optic Cable Installation Project running from Las Vegas, Nevada to St. George, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada, 3500 acre survey and clearance in Death Valley, and the operation of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Mr. Aguirre's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. He is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Mr. Aguirre's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Aguirre is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is



experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. He has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

Mr. Aguirre also has extensive knowledge and experience with GIS and GPS. He used ARCVIEW mapping software to determine home range sizes and movement distances of turtles in Texas.

#### **Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada. (4/00 to present).**
- ◆ **FTV Western Build Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to St. George Utah along the Kern River Pipeline (4/98 to 4/99).**
- ◆ **Southern Nevada Water Authority Treatment and Transmission Facility, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada (3/97 to present).**
- ◆ **Southern Beltway I-215 West Extension, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada (4/98 to present).**
- ◆ **Southern Nevada Water Authority 230kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada (9/97 to 3/98).**
- ◆ **Southern Nevada Water Authority 69kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada (6/97 to 12/97).**
- ◆ **Clark County Large Scale Translocation Site Fencing, Desert Tortoise Construction Monitoring Section 7 Mitigation, Jean, Nevada (2/97 to 2/98).**
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada (2/93 to present)**



- ◆ **Clark County Desert Tortoise Translocation Study**, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada (2/97 to present)
- ◆ **Clark County Desert Tortoise Translocation Study ELISA Testing**, Taking Blood Samples from Approximately 1,100 Desert Tortoises in Holding at the Clark County Desert Tortoise Transfer and Holding Facility Annually, and Approximately 60 Wild Desert Tortoises from the Large Scale Translocation Site and Bird Springs Study Area and Processing the Samples for the Presence of Upper Respiratory Tract Disease, Clark County, Nevada (2/96 to present).
- ◆ **Bureau of Land Management Desert Tortoise Conservation Center**, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).



<b>NAME:</b>	Carlo Calandriello
<b>SNEI TITLE:</b>	Wildlife Biologist
<b>YEARS WITH SNEI:</b>	1 year
<b>EDUCATION:</b>	Masters of Science, Florida International University, Biology, May 1999
<b>CERTIFICATION &amp; TRAINING:</b>	Qualified Desert Tortoise Biologist
<b>AFFILIATIONS:</b>	The Wildlife Society American Society of Mammalogists

**Summary of Experience:**

Mr. Calandriello has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. His project experience includes, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada, 3500 acre survey and clearance in Death Valley, and the operation of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Mr. Calandriello's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. He is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Mr. Calandriello's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Calandriello is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks,



burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. He has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

Carlo also has experience in supervision and management, writing of grant proposals, permit acquisitions, experimental design, data collection and management, and statistical analyses and interpretation of data. As well as the presentation of projects in oral and written form.

#### **Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada.** (4/00 to present).
- ◆ **FTV Western Build Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to St. George Utah along the Kern River Pipeline** (4/98 to 4/99).
- ◆ **Clark County Large Scale Translocation Site Fencing, Desert Tortoise Construction Monitoring Section 7 Mitigation, Jean, Nevada** (2/97 to 2/98).
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada** (2/93 to present)
- ◆ **Clark County Desert Tortoise Translocation Study, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada** (2/97 to present)
- ◆ **Clark County Desert Tortoise Translocation Study ELISA Testing, Taking Blood Samples from Approximately 1,100 Desert Tortoises in Holding at the Clark County Desert Tortoise Transfer and Holding Facility Annually, and Approximately 60 Wild Desert Tortoises from the Large Scale Translocation Site and Bird Springs Study Area and Processing the Samples for the Presence of Upper Respiratory Tract Disease, Clark County, Nevada** (2/96 to present).
- ◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada** (6/97 to present).



**NAME:** Jon Martin

**SNEI TITLE:** Wildlife Biologist

**YEARS WITH SNEI:** 1 year

**EDUCATION:** Bachelors of Science, The  
Evergreen State College, Marine  
Biology, May 1986

**CERTIFICATION & TRAINING:** Qualified Desert Tortoise  
Biologist

**Summary of Experience:**

Mr. Martin's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. He is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Jon's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Martin is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. He has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

Mr. Martin has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. His project experience includes, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada, 3500 acre survey and clearance in Death Valley, and the operation of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.



Mr. Martin has knowledge and experience locating and transplanting the speckled dace as well as threatened and endangered species stream habitat restoration.

**Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada. (4/00 to present).**
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada (2/93 to present)**
- ◆ **Clark County Desert Tortoise Translocation Study, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada (2/97 to present)**
- ◆ **Clark County Desert Tortoise Translocation Study ELISA Testing, Taking Blood Samples from Approximately 1,100 Desert Tortoises in Holding at the Clark County Desert Tortoise Transfer and Holding Facility Annually, and Approximately 60 Wild Desert Tortoises from the Large Scale Translocation Site and Bird Springs Study Area and Processing the Samples for the Presence of Upper Respiratory Tract Disease, Clark County, Nevada (2/96 to present).**
- ◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).**



NAME:	Martin Wise
SNEI TITLE:	Wildlife Biologist
YEARS WITH SNEI:	1 year
EDUCATION:	Masters of Science, Southwest Texas State University, Biology, May 1999
CERTIFICATION & TRAINING:	Qualified Desert Tortoise Biologist

**Summary of Experience:**

Mr. Wise has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. Her project experience includes: Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada and the operation and management of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Mr. Wise's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. She is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Mr. Wise's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Wise is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. She has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.



### **Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada.**(4/00 to present).
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada** (2/93 to present)
- ◆ **Clark County Desert Tortoise Translocation Study, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada** (2/97 to present)
- ◆ **Clark County Desert Tortoise Translocation Study ELISA Testing, Taking Blood Samples from Approximately 1,100 Desert Tortoises in Holding at the Clark County Desert Tortoise Transfer and Holding Facility Annually, and Approximately 60 Wild Desert Tortoises from the Large Scale Translocation Site and Bird Springs Study Area and Processing the Samples for the Presence of Upper Respiratory Tract Disease, Clark County, Nevada** (2/96 to present).
- ◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada** (6/97 to present).



<b>NAME:</b>	Jenith Ziegler
<b>SNEI TITLE:</b>	Wildlife Technician
<b>YEARS WITH SNEI:</b>	4 years
<b>EDUCATION:</b>	Bachelor of Science, University of Nevada Las Vegas, Criminal Justice 1999
<b>CERTIFICATION &amp; TRAINING:</b>	Qualified Desert Tortoise Biologist
<b>AFFILIATIONS:</b>	Member Wildlife Society

**Summary of Experience:**

Ms. Ziegler has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. Her project experience includes: the Southern Nevada Water Authority's Treatment and Transmission Facility located in the Lake Mead National Recreation Area in Clark County, Nevada; the FTV western Build Fiber Optic Cable Installation Project running from Las Vegas, Nevada to St. George, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada and the operation and management of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Ms. Ziegler's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. She is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Ms. Ziegler's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.



Ms. Ziegler is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. She has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

**Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada.**(4/00 to present).
- ◆ **FTV Western Build Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to St. George Utah along the Kern River Pipeline** (4/98 to 4/99).
- ◆ **Southern Nevada Water Authority Treatment and Transmission Facility, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada** (3/97 to present).
- ◆ **Southern Beltway I-215 West Extension, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada** (4/98 to present).
- ◆ **Del Webb Corporation's Anthem 5,000, 5,000 acre Section 10 Voluntary Desert Tortoise Clearance, Henderson, Nevada** (6/97 to present).
- ◆ **Southern Nevada Water Authority 230kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada** (9/97 to 3/98).
- ◆ **Southern Nevada Water Authority 69kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada** (6/97 to 12/97).
- ◆ **Clark County Large Scale Translocation Site Fencing, Desert Tortoise Construction Monitoring Section 7 Mitigation, Jean, Nevada** (2/97 to 2/98).
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada** (2/93 to present)



- ◆ **Clark County Desert Tortoise Translocation Study**, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada (2/97 to present)
- ◆ **Bureau of Land Management Desert Tortoise Conservation Center**, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).



**APPENDIX Z**

**DESERT TORTOISE SURVEY  
SCOTTY'S JUNCTION, NYE CO., NEVADA**







**Desert Tortoise Survey  
Scotty's Junction  
Nye County, Nevada**

Prepared for

**National Park Service**  
Mojave National Preserve  
222 East Main, Suite 202  
Barstow, California 92311

HLA Project No. 49179 4



**Harding Lawson Associates**  
Engineering and Environmental Services  
90 Digital Drive  
Novato, CA 94949 — (415) 883-0112



**Desert Tortoise Survey  
Scotty's Junction  
Nye County, Nevada**

HLA Project No. 49179 4

This document was prepared by Harding ESE at the direction of the National Park Service for the sole use of National Park Service the only intended beneficiaries of this work. No other party should rely on the information contained herein without the prior written consent of the National Park Service. This report and the interpretations, conclusions, and recommendations contained within are based in part on information presented in other documents that are cited in the text and listed in the references. Therefore, this report is subject to the limitations and qualifications presented in the referenced documents.



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- A DAILY FIELD LOG FOR SCOTTY'S JUNCTION SURVEY EFFORT
- B SOUTHERN NEVADA ENVIRONMENTAL INC. BIOLOGIST'S RESUMES

### DISTRIBUTION



## **EXECUTIVE SUMMARY**

This report summarizes the results of a field investigation for Mojave Desert Tortoise (*Xerobates agassizii*) conducted by Harding ESE at Scotty's Junction, Nye County, Nevada. The survey was conducted to document presence or a lack of evidence of presence of Mojave Desert Tortoise (MDT) at a parcel of land known as Scotty's Junction, on Sarcobatus Flat. This parcel is being considered for transfer from the Bureau of Land Management (BLM) to the Secretary of Interior to be held in trust for the Timbisha Shoshone Indian Tribe. This transfer is part of a legislative action mandating the transfer of several parcels in California and Nevada, as well as directing BLM and the National Park Service to negotiate agreements allowing cooperative activities to be conducted by the Tribe on federal lands.

This survey was conducted to provide data in support of the analysis of environmental consequences of the legislative action. A draft (legislative) Environmental Impact Statement (LEIS) has been prepared and is being updated to reflect current conditions. It is anticipated that results of this survey will be incorporated into the final LEIS for purposes of public review and to receive guidance on requirements to achieve compliance with relevant federal and state laws.



## 1.0 INTRODUCTION

MDT is a completely terrestrial desert species, requiring firm, but not hard, friable soils for construction of burrows (in banks of washes, arroyos or sandy hummocks); adequate ground moisture for survival of eggs and young; and herbs, grasses and cacti for food. MDT is typically active from early spring (February to March) depending on climatic conditions and local features (plant community, elevation, temperature range) through October or November (*Stebbins, 1985*). This species is most active during the short period of spring and early summer when conditions are optimal. It retreats into its burrow to aestivate during the hot summer months. MDT hibernates during the winter, usually not re-emerging until the following spring. During the peak summer months it spends the majority of its time underground emerging only during cooler periods or summer thundershowers to forage or drink, (*Berry, 1990*). It is frequently found in and around desert oases, riverbanks, washes, dunes and occasionally rocky slopes and foothills. Creosote bush (*Larrea tridentata*) is often a component of its habitat and MDT pallets (shallow resting burrows, usually not subterranean) are frequently found at the base of these desert shrubs. MDT burrows have a dome-shaped opening, flat bottom, and may extend up to 30 feet underground in the case of burrows used for aestivation or hibernation, (*Berry, 1990*). Pallets are utilized throughout the year while foraging or moving about its territory and are constructed as needed.

MDT ranges from southern Nevada and southwestern Utah to northern Sinaloa (Mex.); southwestern Arizona (Rincon Mts., Pima Co.) west to Mojave Desert and the eastern side of Salton Basin, California. Typically found from sea level to around 4000 ft, (*Stebbins, 1985*).



## **2.0 METHODS**

This investigation included a limited literature review and a field survey of the 2800-acre Scotty's Junction Parcel. The parcel lies just to the east of Gold Mt. Peak at an elevation of 3984 to 4058 feet above sea level at the junction of Nevada State Highway 95 and State Highway 267 which enters Death Valley National Park east of Scotty's Castle.

The Nevada Natural Heritage Program (NNHP), Nevada Division of Wildlife, and the BLM field station at Tonopah were consulted to identify nearest recorded occurrences for the Mojave Desert Tortoise in relation to the parcel.

The field survey for MDT was conducted by Harding ESE biologists and assisted by biologists from Southern Nevada Environmental Inc. (please see Attachment B for biologists resumes) from July 10, through July 27, 2000. The survey consisted of a site walkover following north to south transect lines spaced 30 feet apart along the southern boundary of the parcel. Differentially corrected GPS (Global Positioning System), compass, visual landmarks and 7.5 minute USGS topographical maps of Scotty's Junction were used to maintain distance and heading along transect lines and to establish location of any MDT sign found during the course of the survey. In addition, a spotting scope with a 60x lens and 8x42 binoculars were used to scan the site and roadways during optimal periods of the day when MDT could be active. The entrances and aprons to any burrows or underground retreats were examined for signs of tortoise (scat, eggshell remains, or tracks). Small handheld signal mirrors were used to illuminate and examine the inside entrance and throat of burrows as far down the burrow as was feasible. In an effort to minimize disturbance to any species that might be utilizing the burrow the examination time was limited to approximately 1 to 2 minutes. Surveys were begun each day at approximately 0530 and continued until 1300 when temperatures exceeded 110°F. Surveys were resumed at approximately 1630 and continued until just before sunset (approximately 1930). The entire 2800-acre parcel was examined by



transects at 30' intervals during the course of the 2-week survey. Upon completion of the survey onsite, the zone of influence or area immediately adjacent to the project site was surveyed as well, with the exception of a section of private land to the east of Highway 95. Transect lines at 100', 300', 600', 1200', 2400' from the parcel boundary were established and followed completely around the Scotty's Junction parcel with the exception of the private inholdings along the eastern boundary of the parcel (please see plate 1). No additional evidence of MDT, or additional suitable habitat, was noted during this final stage of the survey. Conditions at the time of the survey were hot and clear, with the exception of the late afternoon of July 13<sup>th</sup> when clouds built up, resulting in cooler, overcast conditions with variable breezes and higher humidity levels. Temperatures ranged from approximately 65°F in the early morning to over 110°F at peak afternoon heat.

All vertebrate wildlife observed during the survey was recorded in field notes, including location, time of day, and plant community. Detailed data on vegetation type was not recorded, but is available in the Vegetation section of the draft LEIS. A brief description of plant communities on the Scotty's Junction Parcel is provided below.



### 3.0 VEGETATION COMMUNITIES

Vegetation communities identified on the project site are typical of Mojave creosote bush scrub and saltbush scrub. The parcel is best characterized as shadscale scrub with scattered creosote bush occurring in the northwest corner of the parcel. Dominant plant species observed include shadscale (*Atriplex confertifolia*), greasewood, green molly (*Suaeda americana*), allscale, fourwing saltbush, burro-weed, creosote bush, and alkali sea-blite with an herbaceous component that included spiny berb, desert prince's plume, desert alyssum, tansy mustard, shredding evening primrose (*Camassonia boothii condensata*), and Russian thistle (*Salsola tragus*).



## 4.0 WILDLIFE

Over the course of the survey, no tortoises or evidence of presence of tortoises was seen. Other wildlife species directly observed during the course of the survey included white-tailed antelope squirrel, desert kitfox, black-tailed jackrabbit, desert woodrat, sagebrush lizard, loggerhead shrike, mourning dove, ash-throated flycatcher, common nighthawk, western kingbird, common raven and black-throated sparrow. Numerous hatchlings of desert horned lizard and long-nosed leopard lizard were seen at Scotty's Junction as well as newly hatched Common nighthawk young (*Chordeiles minor*). Several active kitfox dens were found onsite, with several individuals seen feeding on a black-tailed jackrabbit at one densite on the morning of July 12<sup>th</sup>. An active badger burrow was discovered the following afternoon with prey remains scattered about the burrow apron. Table 1 provides a listing of vertebrate wildlife directly or indirectly observed on Scotty's Junction Parcel during the survey.



## **5.0 DISCUSSION**

The field survey ended at 1930 on July 27<sup>th</sup> with no MDT observations or MDT sign (burrows, pellets, scat, carcasses, remains or young) recorded. Approximately 15% of the parcel (creosote galleries at northwest corner of site) contains limited suitable habitat for MDT, however, the high elevation, lack of burrows and pellets and limited forage base would suggest any occurrence of this species on the Scotty's Junction parcel as accidental or transitory. Information on the nearest recorded sighting of MDT was provided by Mr. Lance Brown, resident biologist at the Tonopah BLM field station, and places two mature female specimens south of the Scotty's Junction Parcel. The first sighting occurred on May 1, 2000 and consisted of an adult female specimen that had apparently been struck by a car while attempting to cross State Highway 95, approximately 8-10 miles south of the Scotty's Junction parcel between mile marker 78 and 79. The second sighting, May 24<sup>th</sup> 2000, places another mature female approximately 4 miles north of the first occurrence, immediately adjacent to State Highway 95 at an NDOT (Nevada Department of Transportation) gravel storage area. This tortoise was translocated across the highway by a qualified tortoise biologist (Lance Brown, Pers - comm.). Information provided by the NNHP and the Nevada Division of Wildlife is consistent with these sightings.



## 6.0 REFERENCES

Berry, Kristin H. *Commonly Asked Questions About The Desert Tortoise and Answers*. Tortoise Tracks, Vol. 11, No. 1, 1990.

Stebbins, Robert C. *Western Reptiles and Amphibians*, 2<sup>nd</sup> edition. Boston, Massachusetts: Houghton Mifflin Co. 1985



## **TABLES**



**Table 1. Observed Wildlife**  
**Scotty's Junction**  
**Nye County, Nevada**

CLASS			
FAMILY <sup>1</sup>			
<i>Scientific name</i> <sup>2</sup>	Common name		Notes
<b>MAMMALS</b>			
BOVIDAE - cattle, sheep, goats			
<i>Ovis canadensis</i>	Bighorn sheep		female skeletal remains
CANIDAE - Dogs, Foxes			
<i>Canis latrans</i>	coyote		scat and prints
<i>Vulpes macrotis</i>	desert kitfox		Observed feeding at den-site
MUSTELIDAE - Badgers and Weasels			
<i>Taxidea taxus</i>	badger		potentially active den w/prey remains
SCIURIDAE - Squirrels			
<i>Ammospermophilus leucurus</i>	antelope ground squirrel		Observed
CRICETIDAE - Mice, Rats, Voles			
<i>Dipodomys deserti</i>	desert kangaroo rat		Observed
<i>Neotoma lepida</i>	desert woodrat		Observed
LEPORIDAE - Hares, Rabbits			
<i>Lepus californicus</i>	black-tailed jackrabbit		Observed
EQUIDAE - Horses			
<i>Equus asinus</i>	burro		scat and prints
<i>Equus caballus</i>	domestic horse		dead specimen
<b>BIRDS</b>			
ACCIPITRIDAE - Eagles			
<i>Aquila chrysaetos</i>	golden eagle		Immature specimen foraging over site
FALCONIDAE - Falcons and Kestrels			
<i>Falco mexicanus</i>	prairie falcon		Observed foraging over site
COLUMBIDAE - Doves			
<i>Zenaida macroura</i>	mourning dove		Observed
TYRANNIDAE - Tyrant Flycatchers			
<i>Myiarchus cinerascens</i>	ash-throated flycatcher		Observed
<i>Tyrannus verticalis</i>	western kingbird		Observed
LANIIDAE - Shrikes			
<i>Lanius ludovicianus</i>	loggerhead shrike		Observed
CORVIDAE - Crows, Jays			
<i>Corvus corax</i>	common raven		Observed
EMBERIZIDAE - Orioles, Sparrows			
<i>Amphispiza bilineata</i>	black-throated sparrow		Observed



**Table 1. Observed Wildlife  
Scotty's Junction  
Nye County, Nevada**

CLASS		
FAMILY <sup>1</sup>		
<i>Scientific name</i> <sup>2</sup>	Common name	Notes
<b>REPTILES</b>		
IGUANIDAE - Iguanids		
<i>Gambelia wislizenii</i>	long-nosed leopard lizard	Observed/hatchlings
<i>Sceloporus magister magister</i>	desert spiny lizard	Observed
<i>Sceloporus graciosus</i>	sagebrush lizard	Observed
<i>Uta stansburiana</i>	side-blotched lizard	Observed
<i>Phrynosoma platyrhinos</i>	desert horned lizard	Observed/hatchlings
<i>Callisaurus draconoides</i>	zebra-tail lizard	Observed
TEIIDAE - Whiptails and Their Allies		
<i>Cnemidophorus tigris tigris</i>	great basin whiptail	Observed
COLUBRIDAE - Kingsnakes, Ratsnakes		
<i>Arizona elegans candida</i>	Mojave glossy Snake	Observed
<i>Chionactis occipitalis occipitalis</i>	Mojave shovel-nose snake	Observed
<i>Masticophis flagellum</i>	coachwhip	Observed
VIPERADAE - Rattlesnakes		
<i>Crotalus cerastes cerastes</i>	Mojave Desert sidewinder	Observed

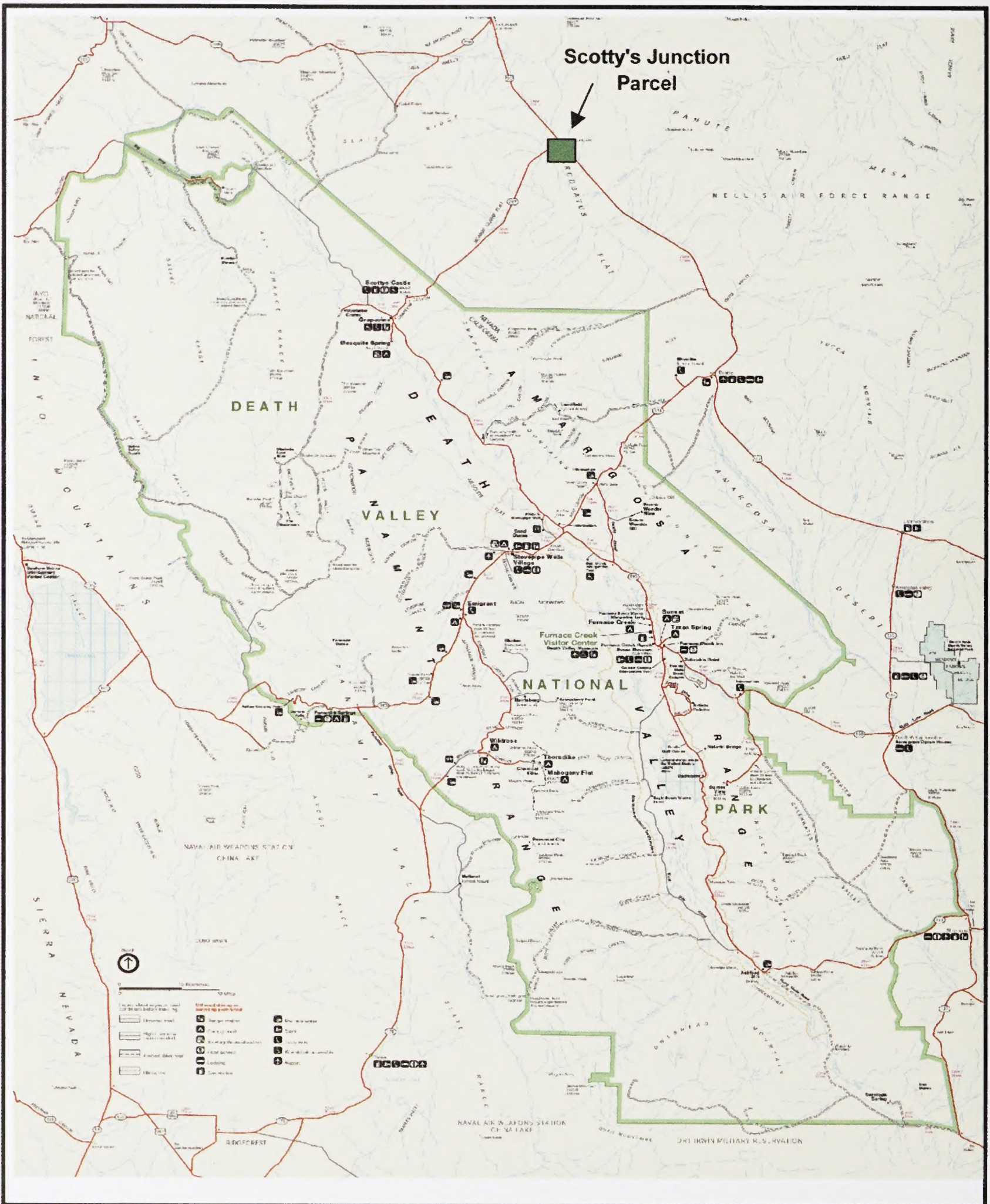
Footnotes

1. Families presented in phylogenetic order (AOU, 1983; Stebbins, 1985; Burt, 1976).
2. Scientific names presented in alphabetic order (by genus) within each family represented.



## **PLATES**





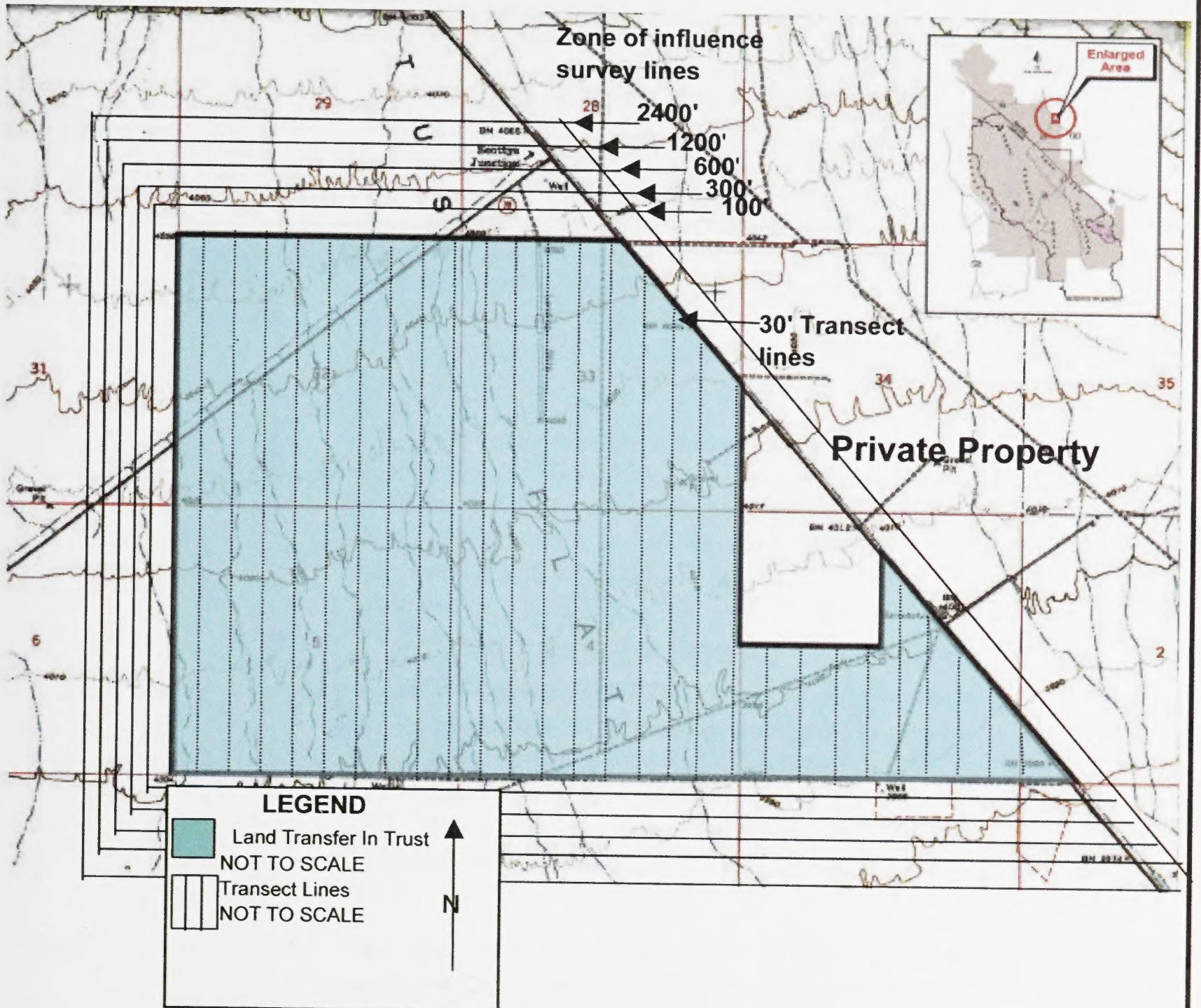
**Harding  
Lawson  
Associates**

**Regional Site Location Map  
Mojave Desert Tortoise Survey  
Scotty's Junction, Nye County, Nevada**  
Source: [www.nps.gov/deva](http://www.nps.gov/deva)  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Plate

**1**





143/20049  
DSC/042000



**Mojave Desert Tortoise Survey  
Scotty's Junction, Nevada**

Source: Bureau of Land Management, 2000  
Reference: USGS, Scotty's Junction, Nevada -  
Nye County, Nevada, 7.5 min. quad topo 1968  
Draft Legislative Environmental Impact Statement  
Timbisha Shoshone Homeland

Plate  
**2**



**APPENDIX A**

**DAILY FIELD LOG FOR  
SCOTTY'S JUNCTION  
SURVEY EFFORT**



**APPENDIX A  
DAILY FIELD LOG FOR  
SCOTTY'S JUNCTION  
SURVEY EFFORT**

<u>Date</u>	<u>Daily Field Log for Scotty's Junction Survey Effort</u>
07/10/2000	Start Time: 0530 Temperature: 62°F, surveying western section of parcel, transects 1-30, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello and Marty Wise. Stop Time: 1300 Temperature: 115°F. Evening survey; resume 1730 Temperature: 112°F Stop Time: 1950 Temperature: 102°F.
07/11/2000	Start Time: 0530 Temperature: 60° surveying western section of parcel, transects 30-60, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Marty Wise. Stop Time: 1300 Temperature: 118° Evening survey; resume 1715 Temperature: 115°F Stop Time: 2000 Temperature: 100°F.
07/12/2000	Start Time: 0535 Temperature: 60°F surveying mid-western section of parcel transects 60-105 biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Marty Wise. Stop Time: 1230 Temperature: 114°F Evening survey; resume 1700 Temperature: 115°F Stop Time: 2000 Temperature: 100°F.
07/13/2000	Start Time: 0545 Temperature: 64°F surveying mid-western section of parcel, transects 105-150 biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Marty Wise. Stop Time: 1330 Temperature: 114°F Increasing clouds. Evening survey; resume 1730 Temperature: 115°F. Stop Time: 2000 Temperature: 100°F (increasing humidity.
07/14/2000	Start Time: 0530 Temperature: 62°F surveying towards center section of parcel, transects 150-185 biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Marty Wise. Stop Time: 1330 Temperature: 112°F No evening survey Demobilize for weekend.



07/19/2000 Mobilize back to site, short meeting with Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, Jon Martin, Jenith Ziegler and Marty Wise

07/20/2000 Start Time: 0530 Temperature: 65°F surveying towards center section of parcel, transects 185-220, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, Jon Martin, Jenith Ziegler and Marty Wise. Stop Time 1230 Temperature: 125°F. @1 inch above grade. Evening survey resume: 1700 Temperature: 110°F, Stop Time: 1950 Temperature: 98°F.

07/21/2000 Start Time: 0545 Temperature: 60°F surveying center section of parcel, transects 220-245 biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, Jon Martin, Jenith Ziegler and Marty Wise Stop Time: 1300 Temperature: 115°F. Evening survey resume: 1700 Temperature: 109°F, Stop Time: 2000 Temperature: 100°F.

07/22/2000 Start Time: 0530 Temperature: 60°F surveying center section of parcel, transects 245-290 biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, Jon Martin, Jenith Ziegler and Marty Wise. Stop Time: 1330 Temperature: 116°F. Evening survey resume: 1700 Temperature: 109°F, Stop Time: 2000 Temperature: 101°F

07/23/2000 Start Time: 0530 Temperature: 63°F surveying eastern section of parcel, transects 290-340, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Jenith Ziegler Stop Time: 1330 Temperature: 116°F, Evening survey resume: 1700 Temperature: 109°F, Stop Time: 2000 Temperature: 102°F

- 07/24/2000 Start Time: 0530 Temperature: 65°F surveying eastern section of parcel transects 340-420 biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Jenith Ziegler Stop Time: 1330 Temperature: 116°F, Evening survey resume: 1700 Temperature: 110°F, Stop Time: 1955 Temperature: 101°F



- 07/25/2000 Start Time: 0530 Temperature: 65°F surveying eastern section of parcel, transects 420-470, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Jenith Ziegler. Stop Time: 1330 Temperature: 116°F, Evening survey resume: 1700 Temperature: 114°F, Stop Time: 1955 Temperature: 104°F
- 07/26/2000 Start Time: 0530 Temperature: 65°F surveying eastern section of parcel, transects 470-528, biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Jenith Ziegler. Stop Time: 1330 Temperature: 116°F, Evening survey resume: 1700 Temperature: 114°F, Stop Time: 1955 Temperature: 104°F. Environmental Inc. biologists; Paul Aguirre, Carlos J. Calandriello, and Jenith Ziegler. Finishing up survey onsite and preparing for zone of influence survey. Scope out eastern boundary and private parcels to the east of State Route 95.
- 07/27/2000 Onsite at 0530, Temperature: 70°F surveying zone of influence around Scotty's Junction parcel. Biologists present; Brett Daniels (HLA), Southern Nevada Environmental Inc. biologists; Paul Aguirre, Jon Martin, Carlos J. Calandriello and Jenith Ziegler Stop Time: 1330 Temperature: 113°F.
- 07/28/2000 Onsite at 0600, demobilizing and taking down flagging and remaining boundary markers, biologists present; Brett Daniels (HLA). Note: No evidence of Mojave Desert Tortoise was documented during the course of this survey effort.



**APPENDIX B**

**SOUTHERN NEVADA ENVIRONMENTAL INC. BIOLOGIST'S RESUMES**



<b>NAME:</b>	Paul Aguirre
<b>SNEI TITLE:</b>	Wildlife Biologist
<b>YEARS WITH SNEI:</b>	1 year
<b>EDUCATION:</b>	Masters of Science, Southwest Texas State University, Biology, May 1999
<b>CERTIFICATION &amp; TRAINING:</b>	Qualified Desert Tortoise Biologist
<b>AFFILIATIONS:</b>	Member Wildlife Society

**Summary of Experience:**

Mr. Aguirre has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. His project experience includes: the Southern Nevada Water Authority's Treatment and Transmission Facility located in the Lake Mead National Recreation Area in Clark County, Nevada; the FTV western Build Fiber Optic Cable Installation Project running from Las Vegas, Nevada to St. George, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada, 3500 acre survey and clearance in Death Valley, and the operation of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Mr. Aguirre's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. He is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Mr. Aguirre's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Aguirre is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is



experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. He has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

Mr. Aguirre also has extensive knowledge and experience with GIS and GPS. He used ARCVIEW mapping software to determine home range sizes and movement distances of turtles in Texas.

#### **Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada. (4/00 to present).**
- ◆ **FTV Western Build Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to St. George Utah along the Kern River Pipeline (4/98 to 4/99).**
- ◆ **Southern Nevada Water Authority Treatment and Transmission Facility, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada (3/97 to present).**
- ◆ **Southern Beltway I-215 West Extension, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada (4/98 to present).**
- ◆ **Southern Nevada Water Authority 230kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada (9/97 to 3/98).**
- ◆ **Southern Nevada Water Authority 69kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada (6/97 to 12/97).**
- ◆ **Clark County Large Scale Translocation Site Fencing, Desert Tortoise Construction Monitoring Section 7 Mitigation, Jean, Nevada (2/97 to 2/98).**
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada (2/93 to present)**



- ◆ **Clark County Desert Tortoise Translocation Study**, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada (2/97 to present)
- ◆ **Clark County Desert Tortoise Translocation Study ELISA Testing**, Taking Blood Samples from Approximately 1,100 Desert Tortoises in Holding at the Clark County Desert Tortoise Transfer and Holding Facility Annually, and Approximately 60 Wild Desert Tortoises from the Large Scale Translocation Site and Bird Springs Study Area and Processing the Samples for the Presence of Upper Respiratory Tract Disease, Clark County, Nevada (2/96 to present).
- ◆ **Bureau of Land Management Desert Tortoise Conservation Center**, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).



<b>NAME:</b>	Carlo Calandriello
<b>SNEI TITLE:</b>	Wildlife Biologist
<b>YEARS WITH SNEI:</b>	1 year
<b>EDUCATION:</b>	Masters of Science, Florida International University, Biology, May 1999
<b>CERTIFICATION &amp; TRAINING:</b>	Qualified Desert Tortoise Biologist
<b>AFFILIATIONS:</b>	The Wildlife Society American Society of Mammalogists

**Summary of Experience:**

Mr. Calandriello has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. His project experience includes, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada, 3500 acre survey and clearance in Death Valley, and the operation of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Mr. Calandriello's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. He is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Mr. Calandriello's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Calandriello is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks,



burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. He has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

Carlo also has experience in supervision and management, writing of grant proposals, permit acquisitions, experimental design, data collection and management, and statistical analyses and interpretation of data. As well as the presentation of projects in oral and written form.

#### **Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada. (4/00 to present).**
- ◆ **FTV Western Build Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to St. George Utah along the Kern River Pipeline (4/98 to 4/99).**
- ◆ **Clark County Large Scale Translocation Site Fencing, Desert Tortoise Construction Monitoring Section 7 Mitigation, Jean, Nevada (2/97 to 2/98).**
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada (2/93 to present)**
- ◆ **Clark County Desert Tortoise Translocation Study, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada (2/97 to present)**
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- ◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).**



**NAME:** Jon Martin

**SNEI TITLE:** Wildlife Biologist

**YEARS WITH SNEI:** 1 year

**EDUCATION:** Bachelors of Science, The  
Evergreen State College, Marine  
Biology, May 1986

**CERTIFICATION & TRAINING:** Qualified Desert Tortoise  
Biologist

**Summary of Experience:**

Mr. Martin's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. He is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Jon's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Martin is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. He has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

Mr. Martin has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. His project experience includes, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada, 3500 acre survey and clearance in Death Valley, and the operation of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.



Mr. Martin has knowledge and experience locating and transplanting the speckled dace as well as threatened and endangered species stream habitat restoration.

**Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada. (4/00 to present).**
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada (2/93 to present)**
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- ◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).**



**NAME:** Martin Wise

**SNEI TITLE:** Wildlife Biologist

**YEARS WITH SNEI:** 1 year

**EDUCATION:** Masters of Science, Southwest Texas State University, Biology, May 1999

**CERTIFICATION & TRAINING:** Qualified Desert Tortoise Biologist

**Summary of Experience:**

Mr. Wise has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. Her project experience includes: Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada and the operation and management of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Mr. Wise's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. She is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Mr. Wise's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.

Mr. Wise is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. She has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.



**Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada.**(4/00 to present).
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada** (2/93 to present)
- ◆ **Clark County Desert Tortoise Translocation Study, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada** (2/97 to present)
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- ◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada** (6/97 to present).



**NAME:** Jenith Ziegler

**SNEI TITLE:** Wildlife Technician

**YEARS WITH SNEI:** 4 years

**EDUCATION:** Bachelor of Science, University of Nevada Las Vegas, Criminal Justice 1999

**CERTIFICATION & TRAINING:** Qualified Desert Tortoise Biologist

**AFFILIATIONS:** Member Wildlife Society

**Summary of Experience:**

Ms. Ziegler has assisted in the completion of dozens field surveys and biological investigations in Nevada and California on desert tortoise and sensitive species related projects. Her project experience includes: the Southern Nevada Water Authority's Treatment and Transmission Facility located in the Lake Mead National Recreation Area in Clark County, Nevada; the FTV western Build Fiber Optic Cable Installation Project running from Las Vegas, Nevada to St. George, the Level 3 Communications Fiber Optic Cable Installation Project running from Las Vegas, Nevada to Alamo, Nevada and the operation and management of the Clark County Desert Tortoise Transfer and Holding Facility in Clark County, Nevada.

Ms. Ziegler's desert tortoise experience includes Section 7 mitigation in accordance with the protocols set by the USFWS Biological Opinions, Zone of Impact and Zone of Influence field studies, survey and clearance protocols, creating and presenting desert tortoise worker education programs and environmental site monitoring. She is also experienced in the Section 10 protocols of the DCP for the Desert Tortoise in the Las Vegas Valley.

Ms. Ziegler's Clark County Desert Tortoise Transfer and Holding Facility responsibilities include feeding and maintaining tortoises in captivity, externally tagging and notching, recognizing the symptoms of URTD, collecting, recording and analyzing data from facility tortoises, assisting in the collection of tissue samples and other important data for ongoing research.



Ms. Ziegler is familiar with the Desert Conservation Plan survey and removal techniques to clear tortoises from private lands in Clark County, NV and is experienced in recognizing various tortoise signs including scat, tracks, burrows, dens, courtship rings, drinking sites, carcasses, shell fragments and egg shell fragments. She has constructed desert tortoise burrows and is experienced in USFWS desert tortoise handling protocols.

#### **Relevant Project Experience:**

- ◆ **Level 3 Communications Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to Alamo, Nevada.**(4/00 to present).
- ◆ **FTV Western Build Fiber Optic Cable Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada to St. George Utah along the Kern River Pipeline** (4/98 to 4/99).
- ◆ **Southern Nevada Water Authority Treatment and Transmission Facility, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada** (3/97 to present).
- ◆ **Southern Beltway I-215 West Extension, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Las Vegas, Nevada** (4/98 to present).
- ◆ **Del Webb Corporation's Anthem 5,000, 5,000 acre Section 10 Voluntary Desert Tortoise Clearance, Henderson, Nevada** (6/97 to present).
- ◆ **Southern Nevada Water Authority 230kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada** (9/97 to 3/98).
- ◆ **Southern Nevada Water Authority 69kv Electrical Transmission Line Installation, Desert Tortoise Construction Monitoring, Section 7 Mitigation, Lake Mead National Recreation Area, Clark County, Nevada** (6/97 to 12/97).
- ◆ **Clark County Large Scale Translocation Site Fencing, Desert Tortoise Construction Monitoring Section 7 Mitigation, Jean, Nevada** (2/97 to 2/98).
- ◆ **Clark County Desert Tortoise Transfer & Holding Facility, Care and Maintenance of Over 1,400 Desert Tortoises in Holding, the Operation of a County Wide Desert Tortoise Pickup Service Collecting Over 1,100 Desert Tortoises Annually, Clark County, Nevada** (2/93 to present)



◆ **Clark County Desert Tortoise Translocation Study, Preparing for Release and Releasing Approximately 1,200 Desert Tortoises Annually to the Large Scale Translocation Site in Jean, Nevada (2/97 to present)**

◆ **Bureau of Land Management Desert Tortoise Conservation Center, Care and Maintenance of Over 600 Desert Tortoises in Holding at the DTCC, Assisting Researchers from the Smithsonian Institute, Clark County, Nevada (6/97 to present).**

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Harding Lawson Associates